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Nov – Dec 2016 { Volume 37, No. 6 }

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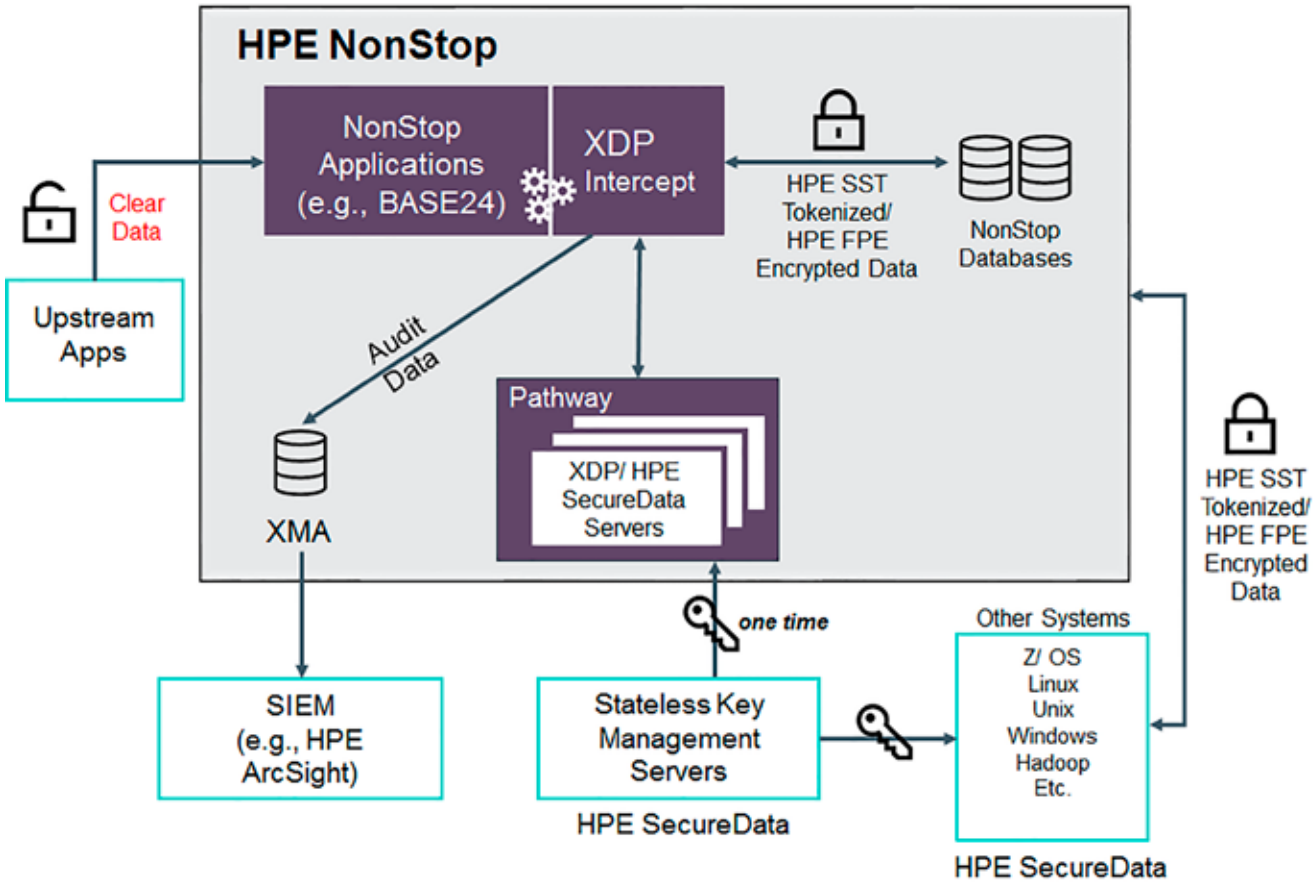

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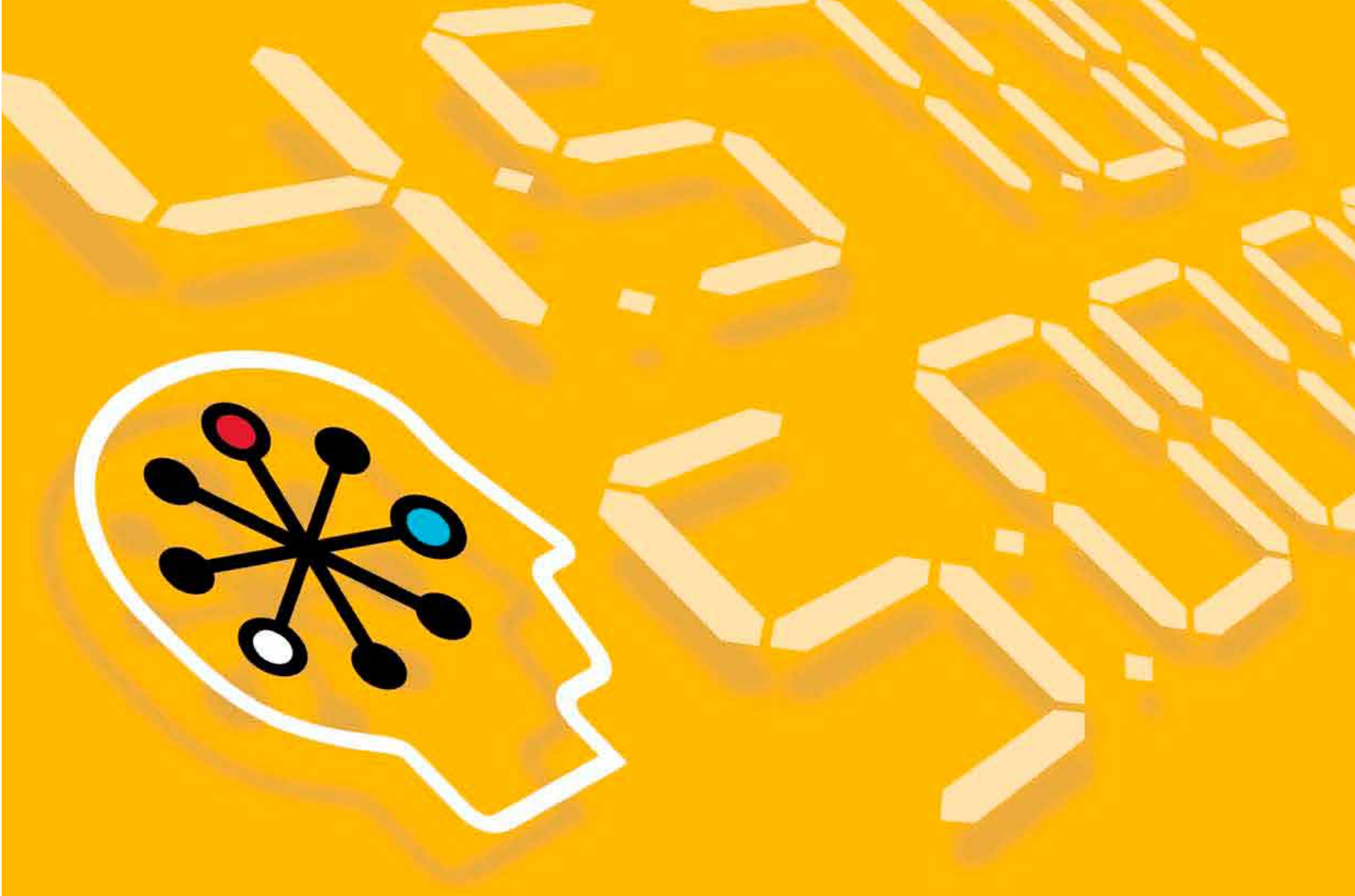

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Columns...

Congratulations Dr Michael Rossbach

Connect Worldwide's 2016 Volunteer of the year

Dr. Michael Rossbach began his long career in the software business in 1973. Back in 1979, he laid the foundations of comForte when he started his business providing consulting and development services for Tandem systems (HPE NonStop today) in Germany. He has been the CEO of comForte since its foundation in 1998.

Building a highly skilled and motivated team, which worked together successfully for many years, has been key to the development of strategic software solutions fueling comForte's growth.

During all this time Michael has been the visionary and strtegic architect of comForte's continued growth and business strategy until today.

Dr. Michael Rossbach's retirement follows the appointment of Michael Deissner as his successor as the CEO. Michael Deissner's appointment was announced on July 4, 2016.

Dr. Michael Rossbach will remain close to comForte in his new role as a member of comForte's advisory board.

A Note from Connect Leadership

Wow. Another fantastic year for NonStop!

I have absolutely ZERO insight into how sales went for the HPE NonStop Division, but I DO know that I traveled to more countries and earned more miles in 2016 than in any previous year. I filled an entire passport in 2016! I spent a lot of time with customers in different industries in varied parts of the world, and they all continue to be happy with their HPNS investment and continue to sing the praises of NonStop. The attitude was extremely positive and everyone has great interest in new HPNS technology.

Being a security professional and a developer as well, I hear a lot of talk about new programming languages or emerging database technologies. What do we care about on NonStop? The same things we always have: Reliability, scalability and availability. These discussions always fascinate me. Everyone is always excited about new technologies and I get that. New toys are always fascinating, but they also introduce new bugs, new issues and new concerns. NonStop people love new technology as much as anyone, but we hesitate putting anything brand new into production. Except NonStop technology! NonStop x86 systems are being installed everywhere I go and the buzz is around SSD's and virtual systems.

I am writing this just before the 2016 NonStop Technical Boot Camp, my absolute FAVORITE week of the year. New products, old faces, updates from HPE and lots of good memories will be shared as we all know how our 2016 went and look forward to 2017.

Some things will always change, and some things we hope never will.

Stay available in 2017, my friends.

Thanks.

Rob Lesan

Rob Lesan
XYPRO Technology
Connect Worldwide President

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News from HPE's NonStop Enterprise Division

Another amazing year!

2016 wraps up with a strong sales year for NonStop and a great NonStop Technical Boot Camp held in San Jose. If you weren't there, we're sorry you missed it but no need to be sad as I'm providing a brief recap for you here.

This year's event had close to 90 breakout sessions across five simultaneous tracks. We kicked off the event with brilliant Key Notes given by Randy Meyer, the Vice President and General Manager of HPE's Mission Critical Solutions team, followed by Andy Bergholz, the Director of HPE NonStop Engineering teams. Randy spoke about the Mission Critical market and the opportunities for NonStop today. Andy talked about NonStop's future with vNonStop and investments in Database Services and compatibility.

vNonStop was certainly the star of the show this year with a number of talks dedicated to it and a live demo available to all in the HPE booth. Attendees got to feast their eyes on an L-series NonStop environment running on two small Linux servers with 2 processors and 2 sockets each. The system took up not much more room than a desktop laser printer. There was a crowd around the demo every time I walked by the booth, and cloud computing was the buzz in all the hallways of the Fairmont for the entire three days.

In between breakout sessions people enjoyed a variety of entertainment sponsored by our Partners, which included a Monday-night party at the top of the Capital Club building next door where everyone got to stand on a top floor balcony close to the super moon with a tasty glass of wine.

Tuesday morning started with an inspiring talk from Dr. Timothy Chou about the Internet of Things. Tim has recently published a book called Precision: Principles and Practices about how the Internet of Things will apply to enterprise businesses in the future and the explosion of new opportunities ahead of us. At the end everyone drifted out of Tim's lecture having their minds opened to the truly vast opportunities offered in the world today. If you missed the show or Tim's talk, information on getting special copies of the book signed by Tim can be found at this url: www.crowdstory.com/precision-2-pack-signed.

We had another full day of talks on Tuesday and I spent part of each day in meetings with customers. We had people attending from all over the world, including Sweden, Germany, Finland, Norway, the Netherlands, the UK, Taiwan and Japan. Nearly every customer we talked to told us a similar story about their NonStop systems and the challenges they were facing. The similarities were amazing in some ways and also completely understandable in the current world climate.

First, it was startling to hear just about everyone tell us that there was a recent reorganization underway or just completed that has impacted their IT team or portions of their IT team, but in many cases not the NonStop team. Second, the pressure to modernize applications and computing is stronger than ever with application teams facing challenges to compete to rapidly bring new services to demanding customers, all the while moving the same applications to more efficient and less expensive platforms without a moment of downtime.

We talked to teams trying to avoid as little as two hours of downtime a year and teams looking to implement real business continuity plans and of course customers looking to migrate off their NB50000 as it reaches end of support at the end of 2017. Challenges and within them opportunities abounded; luckily there are more ways than ever to accomplish their goals on NonStop today.

Wednesday was another full day of breakouts and we had a Closing Session at 5pm. Many faithful NonStop customers and partners were there at the Closing Session and we were gratified to see nearly everyone stand up when we asked if they felt HPE was moving in the right direction with NonStop and if vNonStop was a game changer for them.

All in all it was a great conference. The Beta for vNonStop is gearing up and if you wish to participate, please send an email to Prashanth Kamath U, at p.kamath@hpe.com He will add your name to the list and see that you get the materials you need to fill out for us to schedule you.

As I write this, the DISCOVER show is coming together in London where information about vNonStop will continue to be shared with a new audience and we look forward to hearing their reactions. We expect it will be an exciting time for everyone and another great event.

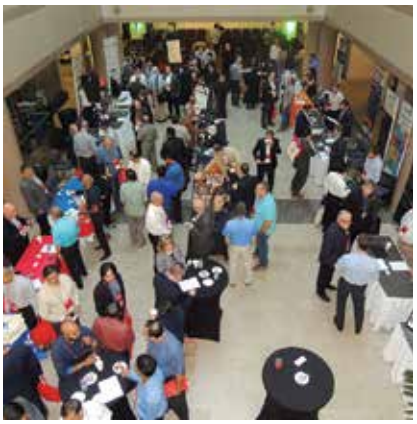
So until we can meet again to watch a vNonStop demonstration together, everyone here in HPE NonStop team wishes you and yours a wonderful Holiday season and a very Happy New Year as we move into 2017 together.

Karen

Karen Copeland
Manager, WW NonStop Product Management
Mission Critical Solutions
Hewlett Packard Enterprise

News from CTUG 2016

Dave Harper >> **Senior Account Executive & CTUG President** >> comForte Inc.



The CTUG fall conference was held at the HP Enterprise head office for Canada, on October 19th, 2016. The conference was very well attended again this year and attendees were greeted by warm weather and sunny skies. The theme for this year's event was "Virtualized NonStop". We started our day with our early bird draw prize which was donated by the Business Critical Systems group of HPE Canada.

The CTUG board was able to arrange an excellent group of speakers for this year's event. Our first speaker was Andrew Bergholz, Senior Director of Development for HPE NonStop. Andrew provided some great insight into the current state of the NonStop business which is doing very well in North America and other countries around the world. Andy also showed us what the very near future holds for the NonStop platform and it is very exciting. This tied in very well with our theme this year of 'Virtualized NonStop."

Our keynote speaker was Richard Buckle from Pyalla Technologies who shared his unique perspective of the NonStop community that comes from his conversations with NonStop customers, HPE NonStop management, and NonStop partners. Richard gets to hear about the exciting new projects that many customers and partners are undertaking, and how NonStopX and vNonStop will help mission critical applications continue to grow.

We were pleased to have Keith Moore from HPE join us as well, to explain how modern development tools and languages can be used in the NonStop environment. Keith provided some excellent examples of modern use cases that are being run on NonStop servers today. After the lunch break we had the vendor track presentations and again we had a full complement of vendors providing details on their products and services.

Closing remarks were provided by Charlie Atkinson, the Managing Director of HPE Canada. Charlie thanked the NonStop customers and vendors for their support. He also highlighted how information technology is driving the fourth industrial revolution. We rely more and more on technology and data to get through every day, and the NonStop architecture plays a key role in that environment.

We closed the day off with the presentation of draw prizes provided by the partners and HPE. This was followed by a reception which was a good opportunity to catch up with old friends and meet new community members. We had a few challenges with the changing venue this year, but it all worked out well and we heard many positive comments from CTUG members and partners.

Scenes from NonStop 2016 Boot Camp


SAN JOSE


Thanks needs to go out to:
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CGI
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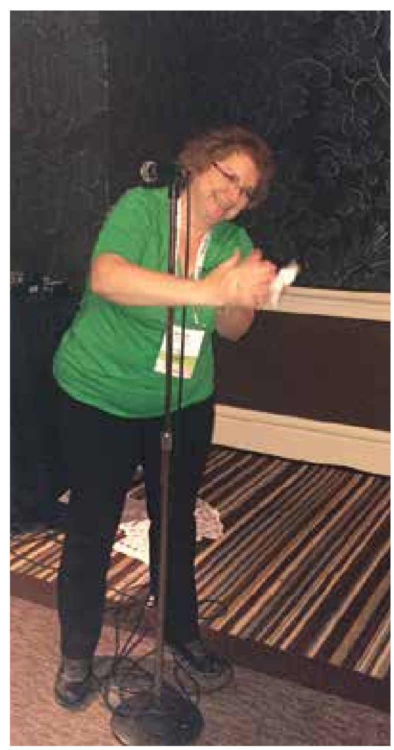

HPE Spins Off Software Assets to Micro Focus

Dr. Bill Highleyman >> **Managing Editor** >> Availability Digest

I started implementing NonStop systems when Tandem was first announced in the late 1970s. The first Tandem system implemented by my company, Sombers Associates, Inc., was a racetrack totalizator system that accepted wagers on horse races and posted the odds and payoffs on display boards around the track.

As Tandem Computers was absorbed by Compaq, which was then acquired by Hewlett-Packard (now Hewlett Package Enterprise), so have Tandem systems morphed into NonStop systems. The basic hardware architecture remains unchanged, though the processors have moved from proprietary to Itanium to x86-based and the duplex ServerNet backbone fabric has been replaced with InfiniBand. However, the software supporting NonStop systems has grown and grown.

HPE now has announced its plans to spin off its non-core software assets and to merge them (a spin-merge) with software-company Micro Focus. This move represents a strategic slimming of HPE by CEO Meg Whitman to strengthen the company's focus on its primary mission – to deliver the promise of hybrid IT, in which a company's data centers are efficiently integrated with its private clouds.

The spin-merge deal is valued at $8.8 billion USD to HPE shareholders. The acquisition of HPE's non-core software by Micro Focus will position Micro Focus to be one of the world's largest software companies.

Earlier in 2016, HPE spun off its Enterprise Services Division and merged it with Computer Sciences Corporation (CSC) in a deal valued at $8.5 billion USD. HPE's technology services business also was not core to the company's current strategy.

However, the spin-merge transaction does not affect NonStop Systems. NonStop is not part of the Software Division that is the subject of the spin-merge. NonStop remains with HPE as part of Mission Critical Solutions headed by Randy Meyer.

HPE's Focus

HPE's strategy is to become the industry's leading supplier of software-defined hybrid IT solutions. While it spins off its non-core software assets, it is keeping its capabilities for software-defined infrastructure solutions and cloud environments.

Key to this strategy are core software assets such as OneView and the Helion Cloud platform. OneView is an infrastructure automation engine that streamlines the provisioning and lifecycle management across compute, storage, and network resources. It enables IT staff to control these resources programmatically through a unified API.

The Helion Cloud is based on the open-source OpenStack architecture. It provides the products and services necessary to create a flexible, open, and secure hybrid cloud. With Helion Cloud, private clouds, public clouds, and traditional IT can be integrated to most effectively meet an enterprise's needs.

These and other products and services enable a standalone HPE to realize its vision of being the industry's leading provider of the software-defined infrastructure that will run today's data centers and will bridge them to multi-cloud environments. The products and services provide the intelligent edge that will power campus, branch, and IoT applications.

HPE's Non-Core Software Assets

The non-core software assets that HPE plans to spin off to Micro Focus include the following systems:

- Application Delivery Management - delivers applications across technologies with quality, speed, and confidence to help accelerate the planning, testing, delivery, and support of optimized applications.
- Big Data Analytics - analyzes all data, structured and unstructured, throughout data and application lifecycles to unify disparate legacy data and the onslaught of new data.
- Enterprise Security - protects users, applications, data and the interactions between them, regardless of location or device, with HPE products and products from ArcSight, Fortify, Data Security (formerly Voltage) and Atalla.
- Information Management and Governance - serves the full spectrum of information management and governance needs for compliance, legal, risk visibility, and control over enterprise information via HPE Verity's "Single Source of Truth."
- IT Operations Management - enables customers to transform their traditional IT environments into a digital enterprise to leverage the full power of the hybrid cloud.

Micro Focus

Micro Focus International is a UK-based company that will become one of the largest software houses globally after its acquisition of the HPE non-core software assets. Micro Focus already has grown significantly via a series of acquisitions, including Attachmate and Serena Software.

Attachmate focuses on secure terminal emulation, legacy integration, and managed file transfer software. Serena Software provides process-based solutions for managing and automating application development, DevOps and IT operations.

Prior to the acquisition of the HPE non-core software assets, the Micro Focus software portfolio was fairly extensive and included:

- Identity-based access governance
- Security
- COBOL development
- Mainframe solutions
- Application development and testing
- IT operations management
- Host connectivity
- Collaboration/networking

The Spin-Merge to Micro Focus

The HPE/Micro Focus spin-merge is expected to close in the third quarter of 2017. The new Micro Focus will be led by Kevin Loosemore, the current company's Executive Chairman.

HPE and Micro Focus also have announced plans for a partnership that will name SUSE as HPE's preferred Linux partner. This will provide additional collaboration leveraging SUSE's OpenStack expertise with HPE's Helion Cloud OpenStack private cloud architecture.

SUSE's software portfolio includes:

- Enterprise Linux
- SUSE OpenStack private cloud
- Software-defined storage
- Other IT infrastructure management and optimization solutions

The Value of the Deal

As a result of the spin-merge transaction, HPE shareholders will obtain a 50.1% ownership in Micro Focus. Micro Focus also will make a cash payment to HPE of $2.5 billion USD. With the value of the stock ownership valued at $6.3 billion USD, the resulting value of the spin-merge transaction to HPE is expected to be $8.8 billion.

After Micro Focus has acquired the HPE software assets, its annual revenue is expected to be about $4.5 billion USD. This revenue is supported by Micro Focus' salesforce, which numbers about 4,000 sales people worldwide.

Where Does This Leave HPE?

The spin-merge of its non-core software assets is a major step toward enabling HPE to slim down in order to realize its vision of being the industry's leading provider of hybrid IT, merging a company's IT assets with its private clouds. HPE's newly created software-defined and cloud business will build on software assets like HPE OneView and its Helion Cloud platform.

In addition, HPE's Technology Services will be deployed to help customers transform their IT environments to hybrid architectures. HPE's Technology Services include about 22,000 service professionals worldwide and will represent about 25% of the company's revenue after the spinoff.

Where Does This Leave NonStop?

As previously stated, the spin-merge of software assets to Micro Focus does not affect the NonStop business directly. NonStop is not part of the Software Division. The Mission Critical Solutions organization, which includes systems such as NonStop alongside Superdome, remains with HPE.

However, in some areas the Mission Critical Solutions organization will forge more formal relationships with the teams that become part of Micro Focus. The NonStop business will move forward with HPE to continue to provide mission critical solutions that support customers' needs for hybrid and cloud environments in accordance with HPE's announced strategy.

Summary

When HP split into two companies, Hewlett Packard Enterprise and Hewlett Packard, Inc, it was to separate the Enterprise business from the printer and PC business (which remained as HP, Inc.). At that time, HPE became a major software player across the needs of enterprises. It is CEO Meg Whitman's intent to focus HPE on providing world-class infrastructure and services to companies implementing hybrid IT systems and merging their traditional IT assets with private clouds (particularly HPE Helion).

To achieve this goal, HPE is honing itself to focus on the assets that contribute directly to this vision and divest itself from those that are less crucial. This has included the spin-off of its Enterprise Services Division to CSC and its non-core software assets to Micro Focus. Both of these transactions will net significant value for HPE shareholders.

Upon the completion of these transactions, HPE will be a slimmed-down company focusing efficiently on providing infrastructure for hybrid IT architectures to companies. In addition, HPE is using the cash that these divestments generate to acquire other technologies that add to this capability. HPE has recently announced that it is acquiring SGI, a global leader in high-performance solutions for compute, data analytics, and data management.

Acknowledgements

Information for this article was obtained from the following resources:

Hewlett Packard Enterprise to Acquire SGI to Extend Leadership in High-Growth Big Data Analytics and High-Performance Computing, *HPE Press Release*; August 11, 2016.

HPE Accelerates Strategy With Spin-Off and Merger of Non-Core Software Assets with Micro Focus, *HPE Announcement*; September 7, 2016.

Micro Focus Announces Intent to Merge with Hewlett Packard Enterprise's Software Business Segment, *Micro Focus Announcement*; September 7, 2016.

HPE to Merge Software with Micro Focus in $8.8 Billion Deal, *HPE*; September 7, 2016.

CEO Meg Whitman on HPE's Plans to Spin-Off & Merge Non-Core Software Assets With Micro Focus, *HPE*; September 7, 2016.

INFOGRAPHIC: HPE's Spin-Merge of Non-Core Software Assets with Micro Focus, *HPE*; September 7, 2016.

HP Enterprise strikes $8.8 billion deal with Micro Focus for software assets, *Reuters*; September 8, 2016.

Dr. Bill Highleyman is the Managing Editor of The Availability Digest (www.availabilitydigest.com), a monthly, online publication and a resource of information on high- and continuous availability topics. His years of experience in the design and implementation of mission-critical systems have made him a popular seminar speaker and a sought-after technical writer. Dr. Highleyman is a past chairman of ITUG, the former HP NonStop Users' Group, the holder of numerous U.S. patents, the author of Performance Analysis of Transaction Processing Systems, and the co-author of the three-volume series, Breaking the Availability Barrier.

News from ATUG

Dale W. Van Stratten >> XYPRO Technologies

Nobody really seemed to know how long it had been. Could nobody really put their finger on how it ended? Did it simply fizzle out or was there a big bang? The closest recollection... .'sometime in the 90's when they were still Tandem'. But on September 29th on another beautiful Georgia day, the Tandem User Community from the Atlanta area converged and convened ATUG 2.0.

My name is Dale Van Stratten, I'm with XYPRO Technology and I look after our customers in the Eastern US and Canadian Territory. This responsibility includes attending regional TUG meetings within the territory and trying to better understand our clients wants and needs. These TUGs include, OTUG (Ohio), SunTUG (Florida), MATUG (Mid Atlantic, DC area), the newly reformed NY/NJ TUG (you can figure that one out), NENUG (NE NonStop Users) and finally CTUG (Canadian). That's a whole lot of TUG'n. That's also a lot of speaking with customers and prospects and a great way to share information, some new and some refresher. In short, it's a great information exchange.

In the early years there were TUGs everywhere. I remember Denver, Washington State, Omaha.... all having TUGs. Many of you reading this can probably remember an old TUG group gone, but certainly not forgotten. I also remember ATUG. Atlanta/Columbus combined cover a lot of territory. The area is also home to at least eight NonStop Accounts with several others having operations or personnel in the area.

The new phenomenon in group meetings are 'MeetUps'. You can Google them or you can access their App for iphone to look for MeetUps in your area. I've attended several technologies based meetups. Generally, these sessions consist of an evening meeting with a speaker/ or vendor and perhaps a sponsor buying Pizza.... These are short meeting groups or club type of events. Meetups are great for local clubs (like the Des Moines Weather Club or Rock Hounds of Laramie). TUGs on the other hand are multi-faceted. They bring a variety of processing ideas and needs together. They are a great way to socialize with your peers and likewise socialize ideas.

ATUG 2.0 started like everything else starts, with a seed (I was going to say kernel). A simple discussion or plan in which we were trying to bring some customers together for an event in Atlanta. It's sort of like inviting a few friends over and the next thing you realize, you're having a party.

You've probably heard the story about 'Stone Soup'. A small village is on hard times and food is scarce. A stranger wanders into town and starts making a pot of soup with just a stone and water. One villager brings a carrot. Next villager brings a potato..... before you know it the entire village is sharing a wonderful cauldron of soup. Everybody brings something to the party. ATUG was like that.....It simply started as a discussion with HPE's Nelson Alvarez about a customer meeting. Then it became an event. Next, The Home Depot stepped up and offered their facility and catering services for the meeting. Then HPE said they would come. Vendors said they would come and present. Most importantly, the NonStop customers said they would come....

So what made ATUG a success? Several factors each brought by a different villager to the party. A huge thanks to The Home Depot for their help with the facility and catering. The facility and your support was incredible! A big, big thanks to HPE for all their support getting the message out as well as providing content. Another thank you goes out to all the vendors who supported the effort with their messages and content. Finally, a big thanks to all the NonStop Users who attended. All in all, we had a big party and all of the villagers agreed the soup was great!

The Home Depot has already said that they would host next year's event. We'll be looking for additional Customer and Vendor Support as we begin to plan our event for 2017! Feel free to contact me directly if you would like to help make the soup next year.

You Know NonStop

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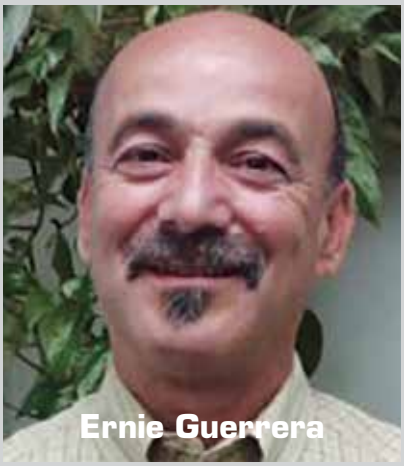
NuWave
THE MIDDLEWARE GUYS

★★★ Looking Back ★★★

Mandi Nulph >> NuWave Technologies

In many cases, people have been in the NonStop industry for a long time. This makes for a lot of interesting stories! In this new column, we visit some of the funny, frustrating, and downright weird stories from NonStop veterans.



Ernie Guerrera

"Well, we all have our share of war stories. One that has impacted me most is the ITUG 2001 event in Anaheim, CA; I'm certain that a great number of us have lasting memories from that fateful day. Coincidentally, I was introducing an FFA Program Manager to the then Tandem community and vendors located in southern California. Regardless of the national events blaring on the news 24/7, this dedicated government employee, who shall remain anonymous, was fixated on being productive, even though the ITUG event was essentially shut down! And… NO AIR TRAVEL for 3-4 days. But, this isn't my main point. I didn't make the connection until many years later, but a NuWave colleague and I were on United flight 4 from BOS to LAX on Sept. 10, 2001 (the same flight lost in the 9/11 attacks the next day). Whenever I'm reminded of that coincidence, I pause and think 'Live life, forgive, be kind and be generous.'"

– Ernie Guerrera, NuWave

"About Tandem people: they're loving, they're giving, they're sensitive, they're caring, they're smart, they're cute… but I'm pretty biased."

– Jimmy Treybig

Jimmy Treybig

Seven Bank banks on HPE Integrity NonStop to handle critical transaction switching

Ensures continuous operations with HPE Integrity NonStop BladeSystem NB54000c

Seven Bank, Ltd. was founded in 2001 as a unique Japanese financial institution specializing in ATM services, driven by demand from Seven-Eleven customers looking for in-store ATMs. The bank has since grown to offer a range of banking services, including online bank deposit, loan, payment, and wire transfer services.

Today, Seven Bank handles as many as 5,700,000 transactions per day through its 22,000 bank-owned ATM machines in

Seven-Eleven convenience stores, Itoyokado, shopping malls, metro stations, and airports all across Japan. With a goal to provide anytime, anywhere access to its services, Seven Bank required an IT infrastructure designed for continuous business.

"The relay server that supports our core business must run nonstop while also enabling us to grow as demand increases. Only HPE Integrity NonStop BladeSystem NB54000c servers have both high availability and scalability to support all our ATM services today and into the future."

– Masaaki Matsuhashi, Executive Officer and Director, ATM Solution Department, Seven Bank

At the core of the bank's infrastructure is a mission-critical server that aggregates all requests from ATM machines and relays them to internal accounting systems, as well as systems at partner institutions. This relay server must handle a rapidly growing volume of transactions in real time with no disruption 24/7/365. However, the bank's previous platform lacked sufficient performance and scalability to keep up with the enormous processing demands projected for the next ten years.

Ensures continuous availability of critical services

After considering an upgrade to its conventional server, Seven Bank worked with its trusted IT partner, Nomura Research

Institute (NRI), to explore alternative solutions. After an extensive technical evaluation, Seven Bank turned to Hewlett Packard Enterprise (HPE) and replaced its conventional server with HPE Integrity NonStop BladeSystem

NB54000c servers powered by the Intel® Itanium® Processor 9300 Series. The HPE platform runs Intelligent Wave Inc.'s NET+1 application, which authenticates ATM card transactions and online connections to banking services. In addition, Seven Bank relies on an HPE Integrity NonStop NS2200 Server for development.

Mr. Kazuki Nishizaki, Seven Bank's Manager, comments, "While migrating NET+1 to the NonStop operating system, we consolidated many functions that had been extended over the last 14 years since the company started. At the same time, we enhanced development efficiency by simplifying the structure of the entire application. This optimizes the environment to respond quickly and be flexible for future enhancements."

NRI led the project, from design and build through ongoing infrastructure operations and management. There are four HPE Integrity NonStop BladeSystem NB54000c servers, two systems are deployed in East Japan and the other two systems are deployed in West Japan. These four systems are production. With the two sites synchronized for active-active operations, this configuration ensures continuous availability of relay services should one of the data centers go down. It also enhances agility to handle unexpected spikes in workload.

With up to 16 CPUs and 4 cores per CPU, the HPE Integrity NonStop BladeSystem NB54000c servers deliver maximum performance for NET+1, and will allow Seven Bank to incrementally scale performance as it continues to grow. The unique HPE Integrity NonStop architecture also delivers the rapid response times needed to process foreign-issued credit and cash cards used by international travelers in Japan.

HPE Integrity NonStop BladeSystem NB54000c servers also help Seven Bank ensure compliance with international security regulations, such as Payment Card Industry (PCI) Data Security Standard, with support for XYGATE products. This ensures that any content and access credentials transmitted across the bank's network are kept private.

Mr. Masaaki Matsuhashi, executive officer and director of the ATM solution department at Seven Bank, concludes, "ATM services are the core of Seven Bank`s business. The relay server that supports our core business must run nonstop while also enabling us to grow as demand increases. Moreover, with the rapid growth of overseas cards being issued, strict adherence to global security standards is essential. HPE Integrity NonStop BladeSystem NB54000c servers have both high availability and scalability to support all our ATM services today and into the future."

Learn more at: hpe.com/go/services

Information Security's Best Kept Secret

Andrew Price >> **VP Technology** >> XYPRO Technology Corporation

This is a tough time of year to find encouraging news about information security. The end-of-year technology reports will no doubt spend a fair amount of time on data breaches, which are never good news. But a look at the trends and patterns this year may show some early signs of progress. The Identity Theft Resource Center's 2016 Data Breach statistics as of October 14, 2016 show that even though the number of breaches with confirmed record exposure is rising, the number of exposed records is surprisingly low. ITRC is reporting "only" about 29 million records exposed so far this year, versus about 177 million in all of 2015 and about 675 million in 2014. So, it is possible that organizations are doing a better job of keeping their data secure even if they are breached.

As Verizon's 2016 Data Breach Investigations Report points out, "no locale, industry or organization is bulletproof." There will be data breaches in 2017, in spite of an organization's best efforts to prevent intrusion to their networks. But extensive use of encryption or tokenization can mitigate the financial loss of a breach.

Encryption is more valuable than you might think. Many people and organizations dislike using encryption, because it seems too expensive and time consuming to be worthwhile. In fact, many organizations only encrypt their data for compliance reasons. But as information systems and threats evolve, encryption provides more value than ever. Network perimeters have expanded; information is flowing in and out of cloud storage through mobile devices and across enterprise server networks. Access control is more difficult, and the number of data breaches is steadily rising. Encrypting or tokenizing data is the best way to limit the effects of data breaches, and preserve a company's reputation and business in the face of persistent attacks.

Cost of Data Breaches

In their 2016 Cost of Data Breach Study, the Ponemon Institute examined the costs of data breaches at 383 companies in 12 different countries, and estimated the average cost to be $4 million, a 15% increase over the $3.5 million reported in 2013.

The costs vary widely from country to country, from a high of $7.01 million in the United States to a low of $1.6 million in India. The cost of data breaches also varies widely from industry to industry; the average cost per stolen record ranges from $335 for healthcare records, to $80 for public sector data. Surprisingly, finance is only in third place with a cost per record stolen of $221.

The costs can be broken down into direct and indirect costs. Direct costs include investigations and forensics analysis, auditing and legal services, and identifying, notifying, and compensating victims. These are comparatively straightforward. Indirect costs, which include reputational damage and loss of business, as well as opportunity costs to the organization's customers, are harder to quantify. According to the Ponemon study, this indirect opportunity cost to the organization is the biggest component of the total cost of a breach for most organizations. Indirect costs to US organizations, for example, were 57% of the total cost.

The overall indirect costs may be even higher. A study commissioned by the UK Ministry of Defense in 2012 concluded that indirect costs of payment fraud accounted for about 75% of the total costs.[1] This study used a broader definition of indirect costs that included reduced use of online services, reduced electronic transaction fees, and the higher cost of in-person transactions compared to online transactions. It estimated the

[1] Anderson, Ross, Chris Barton, Rainer Böhme, Richard Clayton, Michel JG Van Eeten, Michael Levi, Tyler Moore, and Stefan Savage. "Measuring the cost of cybercrime." *In The economics of information security and privacy*, pp. 265-300. Springer Berlin Heidelberg, 2013.

indirect costs of UK payment fraud as $2,300 million and the direct costs as $768 million. For the purpose of comparison, Ponemon calculated indirect costs in the UK as 47% of the total costs[2] in their 2011 Cost of Data Breach in the UK study.

Although the estimates vary with the study methodology, the bottom line does not change: organizations in highly regulated industries are at risk of incurring substantial costs from reputation damage and lost business in the event of a successful data breach.

Avenues of Attack

Attacks can come from external actors or from malevolent insiders. Estimates of the percentage of attacks from external actors vary rather widely. Verizon's report states that 80% of breaches are the work of outsiders, Ponemon estimates 48%, and IBM's 2016 Cyber Security Intelligence Index puts it at 40%. The one thing they all agree on is that organizations have to defend against both external and internal threats. Most organizations, particularly those in highly regulated industries, such as finance and healthcare, have invested in perimeter-style security solutions; and yet they still suffer data breaches. The perimeter defenses do not prevent all external attacks, and do little to protect against malicious insiders.

Data-centric Security & Encryption Limit the Consequences of a Breach

In addition to perimeter defenses, organizations need to consider adopting a data-centric, layered approach to security which includes encryption or tokenization of sensitive data. The cost benefit analysis performed by Kevin Soo Hoo at Stanford in 2000[3], suggests that encryption may provide the highest value of any security investment. Other measures, such as firewalls, anti-virus software and intrusion detection may reduce the probability of a breach, but they cannot prevent every breach. Encryption is the only measure Hoo studied that actually limited the consequences of a data breach. The most recent Ponemon and Verizon studies agree that extensive use of encryption reduces data breach costs. Ponemon estimates it reduces cost by $13 per record, Verizon estimates that encryption technologies have a 21% ROI.

Experts may disagree on what percentage of data breaches come from insiders or external actors, but extensive use of encryption can help limit the damage, regardless of where the breach originates. Encryption addresses the security threat organizations need to worry about the most.

Encrypting or tokenizing data actually has two immediate advantages: it can reduce compliance costs by limiting audit scopes, and it may exempt an organization from publicly disclosing a breach, if the exposed data was properly encrypted to tokenized. Extensive use of encryption or tokenization is the one strategy most likely to reduce the reputation damage and consequent loss of business that dominate the cost of data breaches.

Data-centric security solutions, such as HPE SecureData and XYPRO Data Protection (XDP), can protect sensitive data by encrypting or tokenizing it the moment it is acquired and ensuring that the protection continues wherever the data is stored, transferred, or used. HPE SecureData supports diverse platforms, works with a wide variety of databases and is extensively deployed. XDP optimizes HPE SecureData for NonStop servers.

The Difference Maker: Encryption vs. Layered Point Solutions

To illustrate the difference between data-centric encryption, and the layered point solutions offered by other security tools, we can look at the layered stack models commonly used to describe data networks and data storage systems.

Storage systems can be modeled as a five-level stack: Application, Middleware, Databases, File Systems, and Storage. As shown in Figure 1, there are point solutions to provide security at each level. Disk encryption, for example, encrypts data as it is written to the disk and decrypts it as it is read. It only protects the data actually stored on the disk. It does not protect the data when it is retrieved from the disk and sent up the stack toward the application layer. Database encryption, however, will protect data at the database layer, and the layers below it.

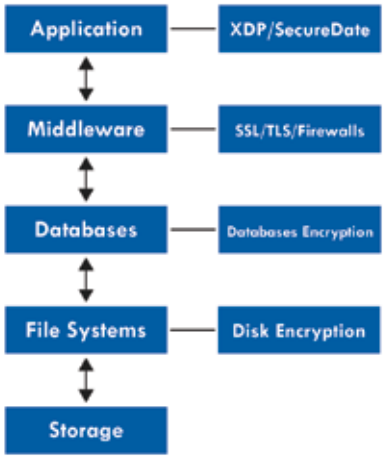


Figure1. Storage and encryption stacks

Figure 2 shows examples of point solutions that can protect data as it is transferred over computer networks. This model uses the TCP/IP communication protocol stack defined in RFC1122 and RFC 123. The stack comprises four layers: Application, Transport, IP and Network Access, as shown in Figure 1. As the arrows in Figure 1 suggest, information is only passed between adjacent layers of the TCP/IP stack. A process running at the Transport layer can pass information to a process running one layer away at the IP layer but not to one running two layers away at the Network Access layer.

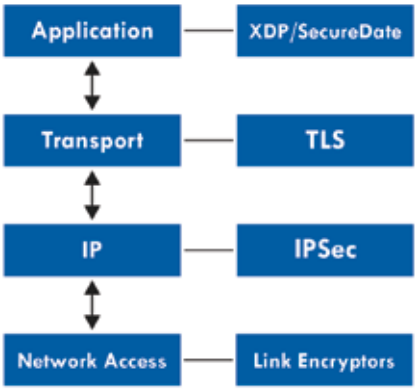


Figure2. Network and encryption stacks

[2] This study does not estimate the total costs of data breaches in the UK; it surveys a sample of organizations and calculates the average cost of the data breaches those organizations experienced in 2011. As costs vary depending on the size of the breach, Ponemon reports the average cost per record exposed in a breach.

[3] Hoo, Kevin J. Soo. How much is enough? *A risk management approach to computer security*. Stanford, Calif: Stanford University, 2000.

Again, encryption can take place either relative to or at different levels in the TCP/IP stack. TLS encryption, for example, operates between the Application layer and the Transport layer. IPSec operates at the IP layer. Link encryptors encrypt at the Network Access layer. There are good reasons to encrypt at different places in the encryption stack, but when you encrypt at a particular location, the encryption only protects against threats that target layers at or below the point where the encryption takes place

If you use TLS to encrypt data between the Transport and Application layers, the TLS encryption will protect against attacks that target the Transport layer, the IP layer and the Network Access layer, but it will not protect against attacks that target processes running at the Application layer. Once data that's encrypted using TLS gets passed up the stack to the Application layer, the TLS encryption is no longer protecting it.

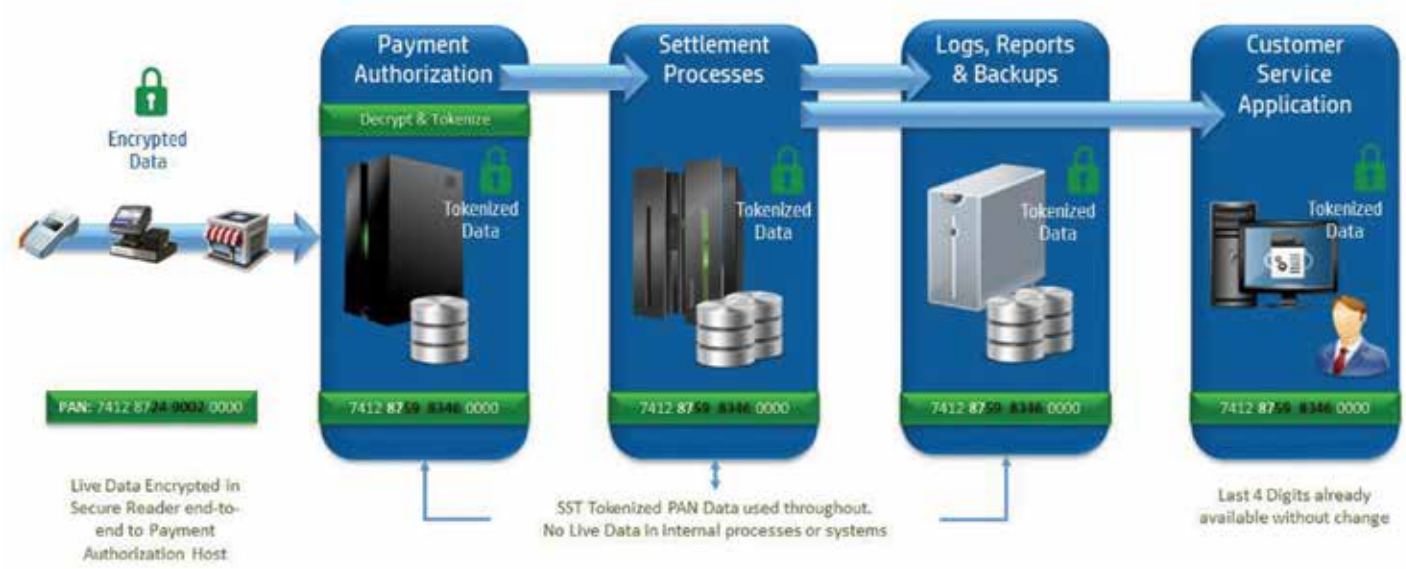
The key advantage to the data-centric encryption provided by HPE SecureData and XDP is that it is applied at the application layer. It protects against attacks that target every lower layer of the network stack or storage stack.

Application Level security: Protection at Every Level

HPE SecureData and XDP use Format Preserving Encryption (FPE) and Secure Stateless Tokenization (SST) to implement protection at the application layer without changing the data's format or requiring changes to the application's source code. This transparent application level security uses a library to intercept all I/O calls, and selectively encrypts and decrypts specified fields as necessary. The data is encrypted before it's sent to the disk and decrypted only as it arrives at the application, so it is protected at every level below the application layer. By tokenizing/encrypting all sensitive data, and therefore rendering it valueless to hackers, XDP can significantly reduce data breach damages.

Conclusion: Limiting the Damage Potential is Your Best Defense

The bottom line is that the number of data breaches is rising; perimeter defenses cannot prevent all attacks. Breaches appear inevitable, particularly in the healthcare and financial industries, which incur the highest costs from breaches. The good news is that data-centric security protects sensitive data from both malicious insiders and attackers that have evaded the perimeter defenses. HPE NonStop systems support critical processes in the industries that are paying the most for data breaches. XDP data-centric security, optimized for the NonStop environment is the best way to limit the damage. Encryption and tokenization are a better value than most people think.



Andrew Price is VP of Technology at XYPRO. He joined XYPRO in 2011, and has over 25 years' experience in the mission-critical IT industry. Prior to joining XYPRO, Andrew was with ACI Worldwide for over 11 years, where he held roles in Product Management, Development and Architecture. At XYPRO, Andrew has engineering and product management responsibility for the XYGATE suite of products, ensuring that they continue to meet XYGATE users' stringent requirements for security and compliance on the HP NonStop. He can be reached at andrew.price@xypro.com

NonStop: Celebrating its presence as a HPE core software asset!

Richard Buckle >> **CEO** >> Pyalla Technologies, LLC.

This past year really kicked off with the NonStop Technical Boot Camp. For most of us, swept as we likely were in end of year celebrations along with welcoming in the New Year, it wasn't until January that we found time to reflect on all that took place in San Jose. For me, what took center stage and as it turned out, dominated much of the conversation within the NonStop community was the confirmation of a working prototype of a virtual NonStop (vNonStop). As I prepared now, in October 2016, for the CTUG Regional User Group (RUG) event, I looked back at commentaries and posts I had made over the years and much to my surprise, one observation really stood out.

My earlier views on virtualization no longer make sense or so it seemed to me at the time I posted to the NonStop community blog, Real Time View back on February 13, 2011 – shifting NonStop further from the hardware lessens its ability to be NonStop! It was in response to a forecast about the future of NonStop that I made all the way back on February 12, 2008. That forecast included three predictions, or wishes, as I preferred to call them, and included deploying blades anyway I liked, customer configurable (blades) on command, and a way to balance transaction mixes, dynamically.

At the time, this was the language I used to describe the use by NonStop of industry-standard blades including an industry standard interconnect; a way that these industry-standard blades could one moment be supporting NonStop and then next, Linux – all from the console without pulling boards; and a way to "soft balance" the mix of operating systems running to ensure the transaction flow at the time could access all the resources they needed. Again this was back in 2008 and at a time when very few people knew of such things as clouds and provisioning. And yet, even as I was updating this forecast just three years later, I had serious reservations about running NonStop in a virtual world. How current events have overtaken even my most basic of premises – yes, you can run vNonStop and it is not only running in the labs but, apparently, in HPE's own IT data center.

As I wrapped up my article on what had transpired in 2015 I noted that the resilience of the community is undeniable. Indeed, with the investments being made by HPE and the NonStop community, its value to markets of all sizes is beginning to attract a new generation of advocates. It still may be premature to pop the Champaign corks or set off the fireworks but how we are ending 2015 is so much better than in times past and with that, perhaps a small toast is in order. Well, as 2016 comes to an end then indeed, the toast should be a lot bigger and the Champagne put on ice! It has been a year where nothing has been off limits and where the imagination of anyone with an interest in NonStop has literally exploded.

When we look more closely at 2016, as an outsider depending still on the product roadmaps that are presented, it is very apparent that NonStop development is now the recipient of some very serious funding. Porting to the Intel x86 architecture is proving to be just a starting point that has fueled the imagination of even the hardiest of NonStop developers. As Andy Bergholz, Senior Director at HPE, wrote in a column to The Connection just a short time ago, "Yes, we can!" And I think it's this new attitude being exhibited by NonStop that will prove contagious as increasingly, the NonStop vendor community is taking a good long hard look at its future development programs for NonStop and finding that there are now many more opportunities for vendors – who could have imagined just a year or so ago that HPE would be talking about NonStop being a part of Clouds, accessed by mobile devices and integrated with Big Data an Data Analytics.

Last year at this time I wrote of NonStop: a system as resilient as its community! Today, as I write this article, I could have just as easily headlined it with NonStop: a technology as pervasive as it is a must-have! Too much? Perhaps not – one of the low points of the year has been the almost constant barrage of headlines surrounding outages of one type or another. While it was the inconvenience suffered by the general public following the many airline reservation systems failures that attracted most of the attention there were also outage elsewhere that affected many of us. Banks and Healthcare providers also suffered serious disruptions following outages – just look at HSBC and Blue Cross / Blue Shield (North Carolina).

To read comments so basic as "Why do modern systems still go down?" and "Why is it that the backups seldom work properly?" makes light of just how interconnected everything has become to the point where the failure of even the smallest component can have devastating effect. And yet, NonStop systems continue to provide levels of

availability unlike any other platform – yes, all that goes into NonStop is as relevant today as it has ever been, probably more so given how connected we all have become. So it has been an interesting year as we watched NonStop development come to a major fork in the road and elect to go down both paths!

It was only a year ago that HPE executives present at the NonStop Technical Boot Camp proclaimed NonStop as the best software platform on the planet as they took the wraps off the work that had been done in the HPE labs in support of an all-software implementation of NonStop running as a guest of a hypervisor. Yes, NonStop could be run as a virtual machine with all the benefits that come from doing so, in particular the removal of any need for specialist hardware. While one path for NonStop has been clearly established and is supported by two distinct hardware families – NonStop i and NonStop X – the other path sets aside the need for anything special and runs on all commercial, off-the-shelf (COTS), x86 hardware and this is big news indeed and a cause célèbre!

The year had barely gotten started when the news broke that at the February, Mobile World Congress 2016 in Barcelona, Spain, the wraps were taken off of vNonStop with attendees given a demonstrating a number of NonStop telco-specific applications running on vNonStop atop HPE x86 servers. For Americans who didn't make it to Barcelona, the demonstration was repeated on the NonStop stand at HPE Discover 2016 just a few months later, but just as importantly, for the NonStop community, there was a joint presentation given by HPE IT with HPE NonStop development. The highlight of the presentation came when it was made apparent that an imminent reconfiguration of internal IT systems to support vNonStop was going to take place whereby NonStop SQL/MX as a DB-as-a-Service (DBaaS) would be supported. A first for NonStop in many ways but a strong reinforcement that the two paths NonStop development was pursuing were going to be sustained over the long haul.

This year was a time spent digesting the news that HP had become two separate companies – HP Inc. and HP Enterprise (HPE). While initially this had little impact on the NonStop community as business-as-usual continued. However, with the news of subsequent "spin merge" divestitures followed involving both services and software, there came a number of rapid-fire questions from the NonStop community. Does this include NonStop? Is NonStop about to be sold? Turns out the headlines of the news announcement said it all. HPE was spin merging its non-core software assets and yet again, after forty plus years, NonStop continued to be viewed as core. For shareholders of original HP stock, when the dust finally settles on all of these actions by the former HP, they will hold stock not in just one company but four and Wall Street sees this as a return to what HP does best. HPQ focused on consumers, HPE focused on the enterprise and now, the HPE Enterprise Group focused on platforms and infrastructure.

Along with electing to go down both paths when they came to the fork in the road separating systems and platforms from strictly software, HPE is coming to yet another fork in the road. Will HPE continue to provide the sole sales channel for NonStop? Or, will there be more emphasis given to a new breed of Value-Added Resellers (VARs)? When you consider HPE may become just one vendor supplying the COTS hardware for vNonStop will enterprises be calling their HPE sales rep or reaching out to a VAR that then takes full responsibility for providing a working NonStop system? Once again, when it comes to time to consider which path to take, I believe that HPE will decide to go down both paths for the simple reason, "Why not?"

NonStop in 2016 gained recognition as a core software asset of HPE. As we have seen the pursuit of standardization across all HPE hardware offerings, such normalization has resulted in the NonStop operating stack and related middleware interfacing not only to a real machine but a virtual machine where HPE NonStop development has come up with a way to ensure that the levels of availability remain as they always have been. This is not a trivial undertaking and there will be a lot of work behind the publication of a NonStop reference architecture that ensure maintenance of the highest levels of availability and my prognosis, back in 2011, that shifting NonStop further from the hardware lessens its ability to be NonStop is no longer a concern.

I anticipate hearing a lot more next year about the growing importance of the NonStop ecosystem. References to the need for greater cooperation among the diverse mix of NonStop vendors is of paramount importance. So too is attracting more and indeed larger vendors to support NonStop and the roll-out of NonStop X is one large stepping stone towards this objective. On-premise, hybrid infrastructures, are going to start evolving and next year, we will see more than just one or two such deployments involve NonStop X but HPE cannot do it all by themselves. Ultimately, it will be solutions vendors who leverage combinations of NonStop i, NonStop X and vNonStop in innovative ways that will fuel additional success for NonStop and this will require much greater cooperation by all participants in the ecosystem supporting NonStop.

What transpires in the coming year will more likely focus on the successful roll-out of much that has been covered here – we will have more NonStop X systems deployed and not just at NonStop vendor sites or as development and test systems. We will likely see many more hybrid configurations now that NSADI (Yuma) is up and running with several vendors testing with the intent to make NSADI a part of their solution. And yes, there will be early adopters of vNonStop willing to talk about the benefits of running NonStop in virtual machines. For now, however, the Champagne continues to chill in ice buckets everywhere as that small toast of last year is blossoming into an all-out celebration of 2016. And here's to even greater success for 2017 and I trust I will see many of you at this year's NonStop Technical Boot Camp!

Richard Buckle is the founder and CEO of Pyalla Technologies, LLC. He has enjoyed a long association with the IT industry as a user, vendor, and more recently, as an industry commentator. Richard has over 25 years of research experience with HP's NonStop platform, including eight years working at Tandem Computers, followed by just as many years at InSession Inc. and ACI Worldwide.

Well known to the user communities of HP and IBM, Richard served as a Director of ITUG (2000- 2006), as its Chairman (2004-2005), and as the Director of Marketing of the IBM user group, SHARE, (2007-2008). Richard provides industry commentary and opinions through his community blog and you can follow him at www.itug-connection. blogspot.com, as well as through his industry association and vendor blogs, web publications and eNewsletters. The quotes come from some of Richard's clients including HP, Integrated Research, comForte, DataExpress, Striim, Inc., InfraSoft, and OmniPayments, Inc.

Protecting sensitive data in native mobile apps while safeguarding the data end-to-end

Trish Reilly >> Global Product Marketing >> HPE Security - Data Security

The Challenge

With the increase in mobile applications, along with the recent surge in data breaches securing sensitive data in the mobile environment has become more important than ever. By year-end, mobile share of ecommerce transactions is forecasted to reach 40 percent globally[1]. Forrester states that mobile commerce transactions will have hit $115 billion USD in 2015 and increase to $142 billion USD this year[2].

Sensitive cardholder information in mobile payment applications, as well as Personally Identifiable Information (PII) and Protected Health Information (PHI) in other mobile-based applications, should be protected end-to-end. The need to safeguard sensitive data in motion captured on mobile endpoints becomes critical to ensure end-to-end data protection.

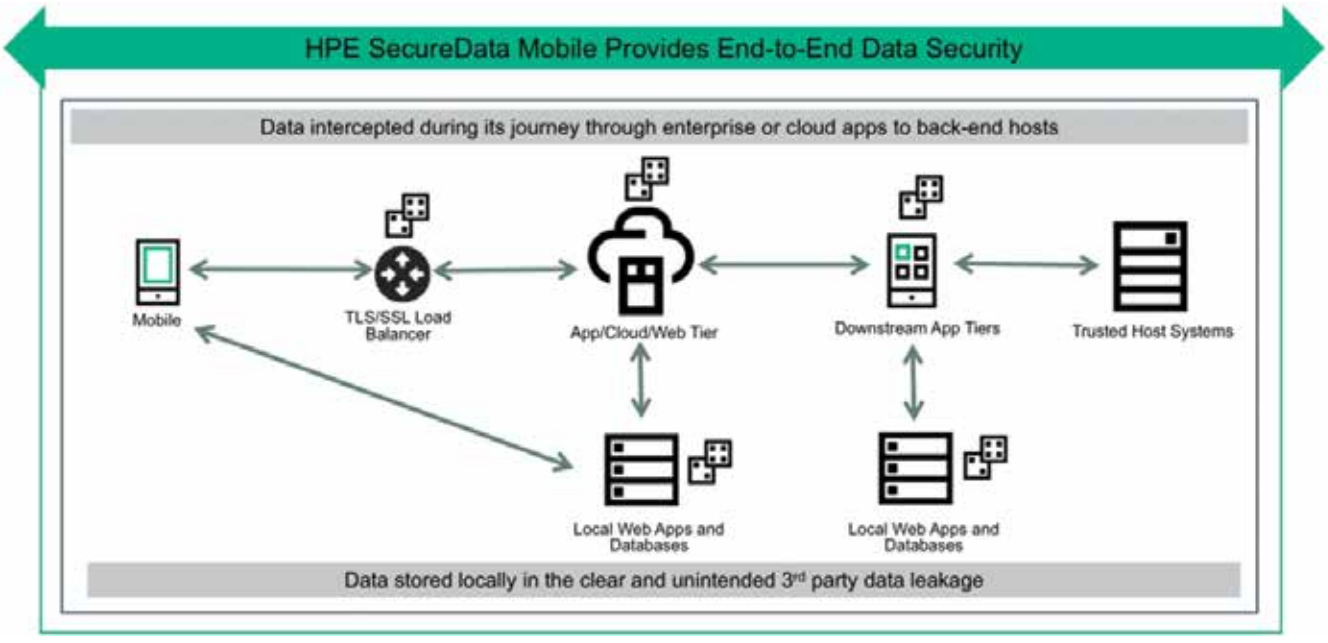
Unique approach

HPE SecureData Mobile, a new addition to the HPE SecureData portfolio, provides security for sensitive data submitted through a mobile endpoint. HPE SecureData Mobile enables end-to-end sensitive data protection within native mobile iOS and Android applications through the entire enterprise data lifecycle and payment transaction flow. Data is secured from the point of capture to the trusted host.

HPE SecureData Mobile leverages HPE Format-Preserving Encryption (FPE) to provide data security for in-app mobile purchases. It encrypts sensitive customer information like PANs (credit card numbers) and the CVV/CVC (3 digit security code) when a customer makes a purchase through a merchant mobile application. The merchant environment has no access to PCI data in-the-clear or encryption keys since the PAN and CVV fields are encrypted in the mobile application before the data reaches the merchant's web services. Decryption happens at the host end so that transaction authorization may be completed. HPE SecureData Mobile simplifies compliance and reduces PCI audit scope.

HPE SecureData Mobile also provides data security for personal sensitive information like PII and PHI, and enables companies to meet PII and PHI compliance requirements. Sensitive PII and PHI information such as name, address, social security number, birthdate, health information and more is protected. In the healthcare industry, HIPAA and HITECH require and enforce the encryption of all PII and PHI data. Healthcare organizations can no longer afford to expose sensitive personal information in mobile environments, especially when more consumers are frequently using mobile apps to access test and lab reports, medical records, and billing services.

In the financial services industry, the combination of new state privacy regulations with consumer demand for faster, more convenient banking and mobile wallet services has also driven the need for companies to secure sensitive data in mobile applications. In a 2015 Forrester report, the findings



show consumers are more willing than ever to walk away from the business if it fails to protect their data and privacy.[3] HPE SecureData Mobile protects sensitive PII and PHI personal data in the mobile applications by encrypting the data so that it may be used safely throughout its lifecycle. Since live data exposure is removed from insecure systems, compliance to privacy regulation is also streamlined. HPE SecureData Mobile safeguards sensitive data as it moves through the enterprise and beyond.

With the growing popularity of digital shopping, the retail industry is rapidly embracing the omni-channel strategy that enables customers to have a seamless shopping experience regardless of the channel, whether online, mobile, or in store. Because of this multichannel approach, it is critical for retailers to reduce fraud and protect consumer data at every touch point to deliver a transformative and secure customer experience.

Key benefits of HPE SecureData Mobile

- Enables consumer confidence to safely interact with the business through mobile devices
- Simplifies PCI compliance and provides scope reduction
- Enables PII and PHI compliance
- Protect sensitive data at every level of the omni-channel and unified commerce experience
- Recognized format-preserving encryption standard (NIST SP800-38G)
- Developer friendly—simple, native libraries, easy to incorporate into iOS and Android apps
- HPE Stateless Key Management eliminates operational complexity

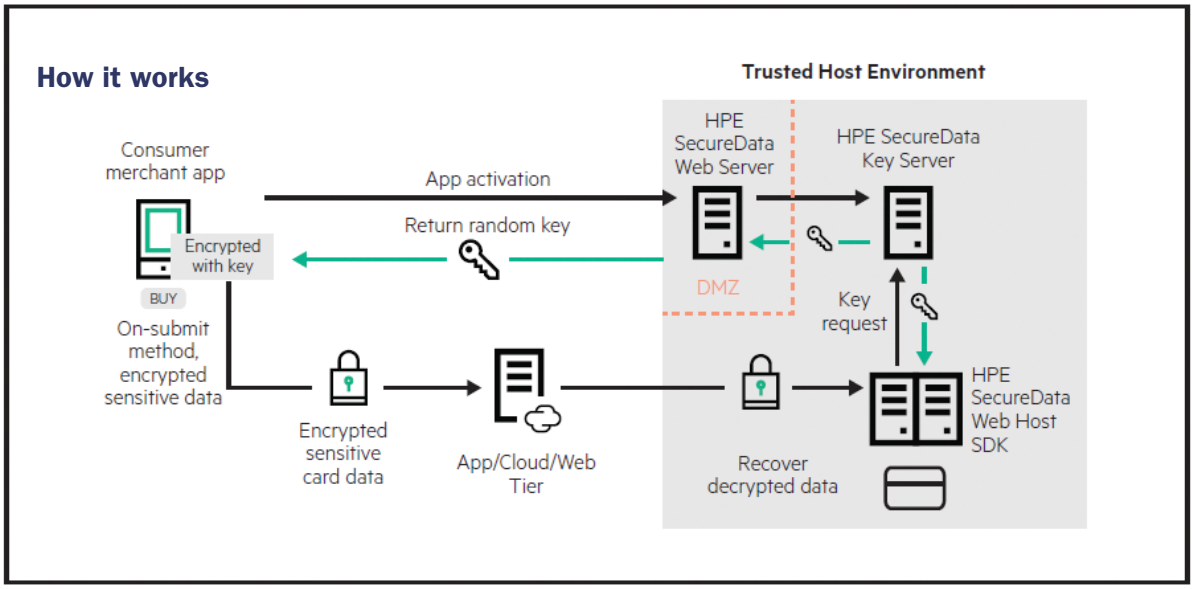
Given the recent number of high-impact retail breaches, and the rapid increase in mobile wallets, payment applications, and other mobile-based applications, retailers need to increase the protection of PII and PHI data so that consumers may safely interact with the business through their mobile devices. HPE SecureData Mobile transparently secures the consumer's submission of sensitive data through mobile applications which gives retailers more control in the customer experience and how store associates interact with customers via mobile devices.

HPE SecureData Mobile Solution

HPE SecureData Mobile is a highly scalable, reliable and developer-friendly data protection solution that leverages HPE Format Preserving Encryption (FPE), a breakthrough technology. HPE FPE is a mode of AES, a recognized encryption standard by NIST (NIST SP800-38G). The result of a standards-based encryption scheme allows for encryption with minimal modifications to the existing applications. Because HPE FPE maintains the format of the data being encrypted, no database schema changes and minimal application changes are required.

HPE SecureData Mobile includes simple, native libraries to easily incorporate into native mobile applications. This enables the application code to retrieve a one-time-use cryptographic key for encrypting sensitive data. HPE SecureData Mobile supports two mobile client platforms, iOS and Android.

HPE SecureData Mobile also supports HPE Stateless Key Management architecture. HPE Stateless Key Management enables on-demand key generation and re-generation without the need for an ever-growing key store. The result is a system that can be infinitely scaled across distributed physical and logical locations for a low operational and infrastructure cost.



[1] "Criteo, State of Mobile Commerce Report", Q3 2015. criteo.com/resources/mobile-commerce-report/

[2] "U.S. Mobile Phone and Tablet Commerce Forecast 2015 to 2020," Forrester Research, October 1, 2015.

[3] Consumer privacy attitudes: A 2015 update, Forrester Research, Fatemeh Khatibloo's Blog, November 18, 2015.

Trish Schaefer Reilly has over 18 years of product marketing and management experience. She has a broad range of expertise in marketing, defining and managing varied technology platforms including: security, data storage, encryption, key management, big data, analytics, virtualization and cloud services for the enterprise and channel for multiple industry verticals. Trish has played a prominent role in building demand and resources within database, security and licensing organizations focusing on the protection of data. Trish brings a unique, broad perspective both to the challenges facing the industry today and the difficulties that experience making critical technology decisions.

Modernizing Payment Applications on HPE NonStop – Hype or Hope?

Thomas Gloerfeld >> **VP Marketing** >> comForte

What's driving the need for modernizing payment applications on the HPE NonStop platform? And what are the most effective methods of doing so?

The payments industry is undergoing rapid change, which introduces many reasons for modernizing payment applications. The key drivers for modernizing payment applications fall within two main categories: business and regulatory.

Business Drivers

Looking at why organizations need to modernize their applications, there are three main business drivers.

The first is the shift from branch-centered to customer-focused services, particularly prevalent in banking and spurred by competition from new entrants into the payments space. Investments in big data and analytics, customer relationship management (CRM), and enterprise IT integration underpin this driver.

The next business driver is a shift to mobile banking and self-service. Factors propelling this trend include omnichannel architecture, mobile/near-field communication (NFC) banking, and cloud services (e.g., software as a service [SaaS], platform as a service [PaaS]).

The third business driver is competitive pressure on merchants and financial technology (i.e., Fintech) companies. Fierce competition is driving innovation and development of new services. Providers are focused on solutions that lower transaction prices, deliver faster payments, and assist in the transition from cash to non-cash payments. A significant trend is the pressure to develop real-time payments and real-time settlements.

Regulatory Drivers

Evolving laws and regulations are omnipresent but there are two major regulatory drivers for the payment industry.

The first is the Payment Card Industry Data Security Standard (PCI DSS) Version 3.2. This updated regulation, released in April 2016, provides new sub-requirements for service providers under Requirements 3, 8, 10, 11, and 12. In addition, there are now extended deadlines for migrating from older to newer versions of Secure Sockets Layer (SSL)/Transport Layer Security (TLS) encryption by June 2018.

The second main driver, particularly for European institutions and those who serve European customers regardless of geographic location, is the emphasis on new data privacy regulations (e.g., the General Data Protection Regulation). New regulations provide requirements for the rights of data subjects, including administrative (i.e., financial) penalties for institutions that allow data breaches.

Options for Modernizing Applications

With these industry drivers in mind, one can choose from three options for modernizing applications. The first is to develop a new application from scratch. This is the most expensive and riskiest of the three options, evidenced by these projects' low success rate, particularly in banking. As an example, one European bank that announced it would build all of its tech from scratch. Several months later, the bank scrapped those plans after spending more than €1 million on this project.

The second modernization option is to replace an existing payments application with a new one. For example, many organizations consider replacing BASE24 classic with BASE24-eps or other solutions. The main challenge with this option is carrying forward all the legacy application's existing functionality. This option often results in functionality trade-offs, which can reduce technical feasibility and/or return on investment (ROI).

The third option is "in-place" modernization. As the name suggests, this option leaves the core legacy application in place while modernizing and/or extending it. This option is the least expensive, least risky, and most expedient. It guarantees the continued availability of all existing functionality.

Fundamental Challenges to Modernizing Applications on NonStop

Right now, there are two fundamental challenges to modernizing applications on the NonStop platform. The first is the sheer amount of high-visibility developments taking place in the Linux, Unix, and Windows (LUW) world. This is especially true for mobile and web payments applications.

The second challenge is that NonStop, "out of the box" (i.e., with BASE24), cannot directly talk to other applications in the LUW world. LUW's current and likely future role in mobile and web applications and platforms guarantees continued relevance. This reality sets up two possible outcomes for NonStop systems:

1. They can be modernized to fit within the organizations' broader IT infrastructure (i.e., LUW); or

2. They will be phased out and the functionality moved to replacement LUW applications and platforms.

The latter outcome is seen as unnecessary as NonStop systems can quite easily be modernized to communicate with LUW-based technology (e.g., software-oriented architecture [SOA], web services, etc.). Phasing out NonStop is also less preferable, because it deprives organizations of NonStop's unique benefits, such as high availability, reliability, and security of payment applications.

So, if modernizing applications is such an affordable, feasible, and proven solution, then why aren't more institutions doing it? It partly comes down to a communication issue between NonStop owners,the business and LUW representatives. In almost all cases, the problem is exacerbated by the existence of different teams (NonStop and LUW) who speak different languages. For instance, NonStop group talks in BASE24 lingo about Enscribe, PTLF, TAL, CSM, and CAF. Meanwhile, the LUW teams talk about virtualization, DevOps, Agile, SQL, and SOAP.

In many cases, the problem also stems partly from NonStop's lack of visibility to the business and LUW teams. Because LUW is more visible to the business, and is therefore known to add value, LUW is where new development happens. LUW teams are receiving budgets and the green light to move forward with projects. Meanwhile, because NonStop's role and benefits are often not visible to or known by the business, these teams face budget cuts and very little new development.

LUW people have no intrinsic interest in NonStop. And because they are working with the technologies that are visible within, and perceived to add value to, the business, they are not compelled to take an interest in NonStop issues. Therefore, it can be concluded that, given the current situation, NonStop owners must take the initiative to talk about application modernization.

A McKinsey insight report nicely summarizes the current situation: "Companies in all industries are experimenting with two-speed tech platforms: rapidly developing innovative website and mobile applications on the front end to facilitate better interactions with customers while continuing to run standardized legacy systems on the back end to ensure data security and reliability." In the payments industry, this plays out as LUW providing front-end tech and NonStop providing back-end tech.

Achieving the Best of all Solutions

In an ideal world, there is an opportunity to achieve the best of both solutions. LUW offers cost effectiveness, cutting-edge development frameworks, cloud-based solutions, and – perhaps most importantly – the ability to get budgets approved for new projects. Meanwhile, NonStop adds value to the business via database integrity and scalability, "five nines" (99.999%) uptime, and legacy applications that provide rock solid existing services via Pathway. It is rather obvious that both groups (NonStop and LUW) have something to offer to and gain from the other.

comForte has been involved in may modernization projects for customers over the years. As an example, these three projects were carried out recently:

- The first was a project in which an SOA-enabled BASE24 system was able to communicate with LUW systems resulting in better integration in the IT environment.
- The second project successfully transitioned the application and data from an Enscribe to SQL database enabling all applications to use SQL across the enterprise.
- The third project was a security-focused modernization project that implemented tokenization and point-to-point encryption (P2PE) for a better overall data protection.

Conclusion

As daunting as it may seem, NonStop application modernization does, in fact, offer hope as much as hype as outlined above. However, the challenges highlighted must be addressed directly and sooner rather than later, or else NonStop very well may have a limited lifetime in some organizations. That would be a shame as NonStop and payment processing is hard to beat combination as anyone in the NonStop and Payments space will confirm.

Thomas Gloerfeld, VP Marketing at comForte, has been associated with the NonStop community for over 20 years. Before joining comForte, he held various management positions at ACI Worldwide both in Germany and the UK. Thomas Gloerfeld can be contacted at t.gloerfeld@comforte.com.

Improving Availability via Staggered Systems Part 1: MTTF – Mean Time To Failure

Dr. Bruce D. Holenstein >> **President & CEO** >> Gravic, Inc.
Dr. Bill Highleyman >> **Managing Editor** >> Availability Digest
Paul J. Holenstein >> **Executive Vice President** >> Gravic, Inc.

The availability of a pair of redundant systems can be significantly enhanced via a simple expedient. Simply stagger their starting times. In this way, the time corresponding to the peak probability of failure of one system will not align with the time corresponding to the peak probability of failure of the other system. When one system is likely to fail, the other system is likely to survive.

In this pair of papers, we delve into the theory behind this concept. Though the papers may seem at times heavy in mathematics, those who feel themselves mathematically challenged can skim through the mathematics (or disregard such sections totally). The results are clearly stated and do not need the mathematics for understanding.

In the first part of this series, we point out a fallacy in classic availability theory. We have become accustomed to the term MTBF – Mean Time Between Failures. This is the average time between failures of a system. Instead, we introduce the term MTTF - Mean Time To Failure. This is the expected time to the next system failure. Unlike MTBF, MTTF is a function of time. As time goes on, MTTF becomes shorter. The likelihood of a system failure draws nearer.

In the second part of this series, we develop the theory behind staggered systems. We show that the ideal stagger time is the time that minimizes the correlation between the probabilities of distribution of the two systems comprising the redundant system.

The Fallacy of Classic Availability Theory

Classic Availability Theory

According to classic availability theory, availability is the proportion of time that the system is operational.

Let:

MTBF be the mean (average) time between failures of the system.
MTR be the mean (average) time to repair the system.
A be the probability that the system is operational (it is available).
F be the probability that the system is not operational (it has failed).

Then

$$A = \frac{MTBF - MTR}{MTBF} = 1 - \frac{MTR}{MTBF} = 1 - F \qquad F = \frac{MTR}{MTBF} \qquad (1)$$

Consider a two-node redundant system (either active/passive or active/active) as shown in Figure 1. In an active/backup configuration, one system is acting as the production system; and the other system is standing by to take over in the event that the production system fails. In an active/active system, both systems are actively participating in the application. Should one system fail, all transactions are routed to the surviving system.

The availability of a node, a, is a = 1 – MTR/MTBF. The probability that a node will be failed, *f*, is f=(1-a) = MTR/MTBF. The probability that both nodes will be failed (i.e., the system is down), *F*, is

$$F = f^2 = (1-a)^2 \qquad (2)$$

The probability that the system is up (it's availability), *A*, is

$$A = 1 - F = 1 - (1-a)^2 \qquad (3)$$

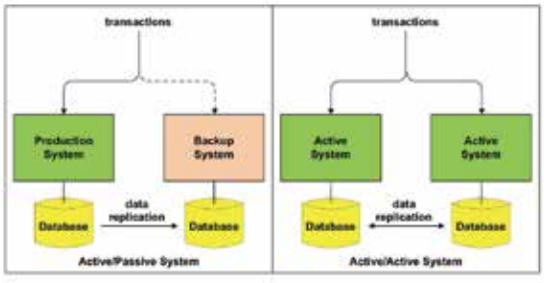


Figure 1: Redundant Systems

Memoryless Variables

In the classic availability theory discussed above, MTBF and MTR are *random variables*. This means that the event (the failure of the system or the repair of the system) is independent of what has happened in the past and has no impact on what will occur in the future. They are *memoryless variables*. This has implications that make no sense:

> Assume that MTBF is 1,000 hours. On the average, failures occur every 1,000 hours. Since MTBF is memoryless, the expected time to the next failure is 1,000 hours. If we wait 500 hours, the average time to the next failure is still 1,000 hours (even if we had a failure in the intervening 500 hours).
> Assume MTR is four hours. When the system fails, it will take an average of four hours to repair it. If we wait for two hours and ask the technician when he expects the repair to be completed, he will still say four hours.

The Exponential Distribution

Random variables are described by the exponential distribution function. For instance, consider MTBF. The probability of failure over time is given by

$$p(\text{failure})=e^{-t/MTBF}/MTBF \quad (4)$$

The average time to the next failure is

$$\text{average time to next failure} = \int_0^\infty (te^{-t/MTBF}/MTBF)dt=MTBF \quad (5)$$

If we wait for a time T, then the average time to the next failure is

$$\text{average time to next failure} = \int_T^\infty [(t-T)e^{-(t-T)/MTBF}/MTBF]dt=MTBF \quad (6)$$

The average time to the next failure is still MTBF. Random variables characterized by the exponential distribution function are indeed memoryless.

Classic Availability Theory is Flawed

This is a fundamental flaw in classic availability theory. The time to the next failure is always the same, no matter how long the system has been operating. The time to the completion of the current repair is always the same, no matter how long the system has been under repair.

What is needed is a means to estimate the mean time to the next failure, MTTF, based on realistic probability distributions of failure. MTTF should be a function of time (Figure 2). As time goes on, MTTF should become shorter for realistic systems. It is more likely that the system will fail as time progresses.

Mean Time To Failure (MTTF)

Figure 3 shows a typical probability distribution, $p_f(t)$, for the failure of a system. When the system is new, it is unlikely to fail. As it ages, the probability that it will fail increases. At some point, the probability that it will fail will begin to decrease because it likely already has failed.

The probability p_i that the system will fail at some time t_i during a small time interval Δt is $p_i \Delta t$. The mean time to failure for the system is the average of these failure probabilities:

$$MTTF = \sum_{i=0}^{\infty} t_i p_i \Delta t \quad (7)$$

For a continuous function, this becomes

$$MTTF = \int_0^\infty t p_f(t) dt \quad (8)$$

Let us now wait for a time T, as shown in Figure 4. MTTF is now

$$MTTF = \frac{\sum_{i=T}^{\infty}(t_i-T)p_i\Delta t}{\sum_{i=T}^{\infty} p_i \Delta t} = \frac{\sum_{i=T}^{\infty} t_i p_i \Delta t}{\sum_{i=T}^{\infty} p_i \Delta t} - T \quad (9)$$

where the MTTF term has been normalized to account for the shorter time. Comparing Equations (7) and (9), it is clear that MTTF has become shorter as time has progressed (except for the unusual case where the system survives into old age).

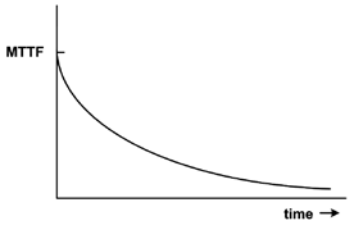


Figure 2: Mean Time to Failure

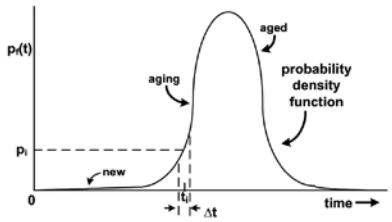


Figure 3: Typical Failure Probability Distribution

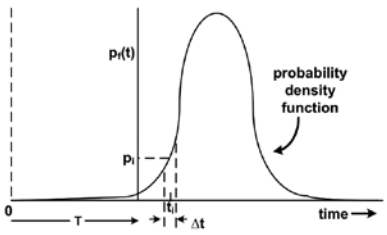


Figure 4: Failure Probability at a Later Time

Redundant System

As described earlier, the reliability of a system can be greatly improved by making it redundant. A second system is added. As shown in Figure 1, the redundant pair can be operated either as an active/backup pair or as an active/active system.

Everyone has a moment when business continuity becomes real.

In the world of business continuity, there's no fire department to call before things get out of control. By then, it's too late. To protect your IT services from fire, or any one of a dozen other serious threats, you need protection in place *before* the worst happens.

Shadowbase business continuity solutions help ensure that no matter how toasty or damp your critical data becomes, there will always be an up-to-date copy available in another location to keep your business online. Don't wait for the fire department to arrive. Instead, contact Gravic today for more information on how Shadowbase software can protect your business now.

For more information, please see the Gravic white paper:

Choosing a Business Continuity Solution to Match Your Business Availability Requirements

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Figure 5 shows a typical system failure probability distribution including infant mortality. Infant mortality is a system failure caused by defects not found in its initial testing before installation. In some cases, the system may not come up at all. In other cases, it may fail shortly after it becomes operational. Once the system is "burned in," the system will run reliably until it ages.

A redundant system is available so long as one of the systems is operational. It fails only if both systems fail.

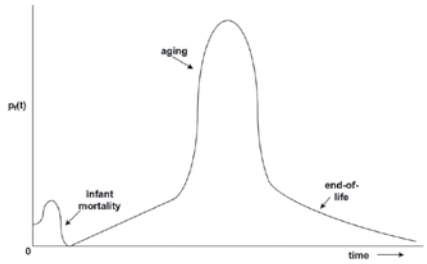

Figure 5: Infant Mortality

In a dually redundant system comprising a System 1 and a System 2, let the probability distribution of failure for System 1 be $p_{f1}(t)$ and the probability distribution of failure for System 2 be $p_{f2}(t)$. The mean time to repair a system is MTR. The probability distribution that both systems will fail is MTR $p_{f1}(t)\, p_{f2}(t)$, as shown in Figure 6. Clearly, the probability that both systems will fail simultaneously is less than the probability that either system will fail at that time. The peak probability that both systems will fail occurs at the peak probability of each failure probability distribution.

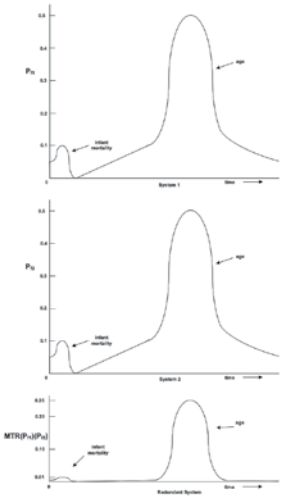

Figure 6: Systems Started Simultaneously

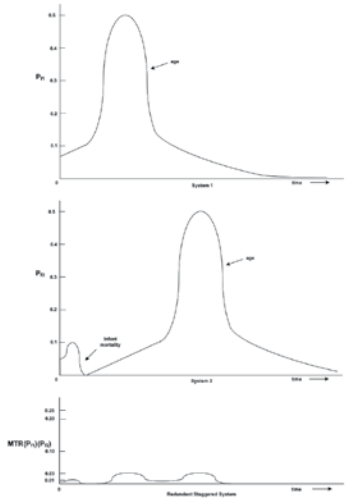

Figure 7: Starting Times Staggered

The availability of the redundant system can be significantly improved by staggering the starting times of the two nodes, as shown in Figure 7. When the probability of failure of one system is high, the probability of failure of the other system is low, thus minimizing the chance that there will be a dual system failure. The impact on a total system failure when starting times are staggered as shown in Figure 7 is explored in Part 2 of this series.

Summary

Classic availability theory is flawed in that the expected time to a system failure does not change with time. Clearly, as time goes on, the expected time to system failure should shorten. This flaw is corrected with the concept of Mean Time to Failure (MTTF). MTTF can be used to determine the impact on the availability of various redundant system configurations.

The use of MTTF to analyze redundant systems with staggered starts is explored in Part 2 of this series, "Mitigating Redundant Failures via Staggering."

Dr. Bruce D. Holenstein, President and CEO. Dr. Holenstein leads all aspects of Gravic, Inc. as President and CEO. He started company operations with his brother, Paul, in 1980, and is presently leading the company through the changes needed to accommodate significant future growth. His technical fields of expertise include algorithms, mathematical modeling, availability architectures, data replication, pattern recognition systems, process control and turnkey software development. Dr. Holenstein is a well-known author of articles and books on high availability systems. He received his BSEE from Bucknell University and his Ph.D. in Astronomy and Astrophysics from the University of Pennsylvania.

Dr. Bill Highleyman is the Managing Editor of The Availability Digest (www.availabilitydigest.com), a monthly, online publication and a resource of information on high- and continuous availability topics. His years of experience in the design and implementation of mission-critical systems have made him a popular seminar speaker and a sought-after technical writer. Dr. Highleyman is a past chairman of ITUG, the former HP NonStop Users' Group, the holder of numerous U.S. patents, the author of Performance Analysis of Transaction Processing Systems, and the co-author of the three-volume series, Breaking the Availability Barrier.

Paul J. Holenstein is Executive Vice President, Gravic, Inc. He has direct responsibility for the Gravic, Inc. Shadowbase Products Group and is a Senior Fellow at Gravic Labs, the company's intellectual property group. He has previously held various positions in technology consulting companies, from software engineer through technical management to business development, beginning his career as a Tandem (HPE NonStop) developer in 1980. His technical areas of expertise include high availability designs and architectures, data replication technologies, heterogeneous application and data integration, and communications and performance analysis. Mr. Holenstein holds many patents in the field of data replication and synchronization, writes extensively on high and continuous availability topics, and co-authored Breaking the Availability Barrier, a three-volume book series. He received his BSCE from Bucknell University, a MSCS from Villanova University, and is an HPE Master Accredited Systems Engineer (MASE). To contact the author, please email: SBProductManagement@gravic.com . Hewlett Packard Enterprise directly sells and supports HPE Shadowbase Solutions (www.ShadowbaseSoftware.com); please contact your local HPE account team.

The New HPE Partner Ready Program for Technology Partners. Are you ready?

Sridhar Neelakantan >> **Product Manager** >> NonStop Enterprise Division

HPE vision for a new partnership program

When Hewlett Packard Enterprise (HPE), emerged from the former HP, the opportunity for re-energizing the new company's partner program was realized.

The new Partner Ready program is conceived to provide a unified system, methodology, benefits and requirements to all partners regardless of the particular HPE business unit they are partnering with or the technology domain in which they are operating. Partner Ready replaces the AllianceOne Partner program which ended officially on August 31st of this year. The new program is designed to be the base foundation for building on our core values, namely "innovators at heart", "partnership first" and "bias for action". HPE recognizes that partnership & collaboration are very essential for any organization to excel in its business. It is doubly true especially in the fast and ever changing field of IT. Goals for the program include:

- **Faster time-to-market**
- **Increased revenue and market share**
- **Easier to navigate and engage with HPE**
- **Consistent and predictable partner experience**
- **Ability to grow and expand partnership**

Figure 1: Printer Ready Motivation

The timing could not have been more appropriate. Businesses worldwide are quickly embracing "*digitalization of everything*". HPE and its partners should collaborate to guide our mutual customers through this new style of IT powered business environment. HPE and partners must lead the way for our customers to get the most benefit out of the digital phenomenon. HPE has defined four transformation areas as the critical areas in which our customers will expect our help and guidance through our technological leadership. It cannot be emphasized enough to state that one unified framework of system and processes will surely make our collaboration easy, trust worthy and mutually rewarding outcomes both for our customers and ourselves. Meg Whitman, HPE Chairman, President, and CEO remarked that "We're living in an idea economy, and it has never been easier for someone to turn a concept into reality. Hewlett Packard Enterprise will be the means by which older companies / enterprises will move into the new world. And we will rely heavily on our partners to lead our joint customers to this New Style of Business powered by cutting edge IT."

With the above in focus, a new HPE Strategic Alliances Organization has been formed *encompassing all the HPE business units* to provide a cohesive structure to the new program. This reflects the fact that many of our partners operate in multiple IT infrastructure domains at the same time.

Program mission

The new partnership program is structured on the 3 principles stated by our President & CEO Meg Whitman. They convey the seriousness and the determination of HPE to enhance, nurture and leverage a strong partner ecosystem for our mutual benefit.

"The time is NOW for our partnerships."
"Partner First"
"Our partners are at the center of everything we do."

Figure 2: Partner Ready Program Sponsors

Partner Ready is the single HPE Global Program for all partner business models that provides incentives, enablement resources, and tools to drive revenue growth and partner investment. Figure 3 shows the 3600 degree coverage of all the business models that HPE partners operate with.

Figure 3: Single Program for all Partner Business Models

Figure 4: Partner Ready

Based on the type of business model, the partners can be classified as channel partner (resell), technology partner (develop, integrate), consulting partner, OEM (embed), service provider (manage, host) and others. Most NonStop partners will be classified in the technology partner category with some falling within the consulting partner class. There is a partner ready program for each type of business model.

Partner Ready for Channel Partner program is associated with organizations that help resell HPE products. Consulting partners evangelize HPE technology and products, train or guide our customers and end users to get the best advantage from those products and continuously keep them in step with the new improvements. The Partner Ready for OEM Partner program will help those that use HPE artefacts in their end products. A service provider partner hosts HPE equipment and possesses the expertise to provide the necessary solutions. Or they may operate and manage HPE equipment and software on behalf of the end customer. For all these types of partners, the Partner Ready program will provide them with detailed information & training on HPE technology, products/ solutions and services to ensure they can provide the maximum benefit to our mutual customers.

The technology partner uses HPE hardware platforms and software in order to create new solutions and products that will address industry use cases. We will discuss the Partner Ready for Technology Partners program in this article. The partner ready program enables a broad ecosystem of Technology Partners, offering clear partner benefits and requirements and delivering a predictable partner experience.

It enables independent software vendors and independent hardware vendors to more easily integrate, validate and market product integrations together with HPE, resulting in a faster time-to-market and increased revenue, market share, and customer loyalty.

The mission statement is pictorially shown in Figure 4. Starting from circle the on the left, the sectors associated with technology partners are the ones marked "develop" and "integrate". Partners get enrolled into one of the tiers of the four tier partnership program pyramid shown in the center. Together with our partners HPE works with, helps and guides our mutual customers through one or more of the four transformation areas (shown in Figure 4 above) to be the best in their chosen business & technology domains.

Program Structure

The partner ready program is directly managed by a dedicated team within the Sales HQ of the Enterprise Group business unit in HPE. Peter Ryan, Chief Sales Officer manages the whole program across the whole of HPE. In his team Don Jones, Vice President, Technology Partner program is the manager for the Partner Ready (seated in the middle in Figure 1).

As stated earlier the fundamental objective of the program is to achieve faster time-to-market with increased revenue and market share for both HPE and our partners by satisfying our customers beyond their expectations. For this the program supports all different business models such as technology partners, channel partners, service providers and OEMs. This article elaborates on the aspects relevant to our technology partners. These aspects are grouped under the title Partner Ready for Technology Partners program. Henceforth in this article we will refer to this program simply as Partner Ready.

Partner Ready for Technology Partners program is structured into a four tier pyramid as shown in Figure 5 (next page). We have listed the benefits to partners and this requirements placed on them for each tier next to the figure.

As the figure shows, the gold and platinum tier partnerships are available only through an invitation.

The benefits that a partner gets differ among the tiers. Most of the NonStop partners will come within the silver tier and for a few the business tier will be good enough.

A partner may be attached to more than one HPE business unit because their products span across technologies such as compute, storage, networking, services etc. However there is only one Partner Ready membership associated with the partner and one partnership tier to which it belongs.

Benefits to NonStop partners and requirements placed on them

Table 1 shows the lists of benefits that business and silver tier partners get out the Partner Ready for Technology Partners program and the requirements placed on them.

Partner Ready and NonStop Advanced Tehnical Center (ATC)

Silver tier partners are eligible for 17 weeks access to the NonStop ATC This must be used within each partnership year.

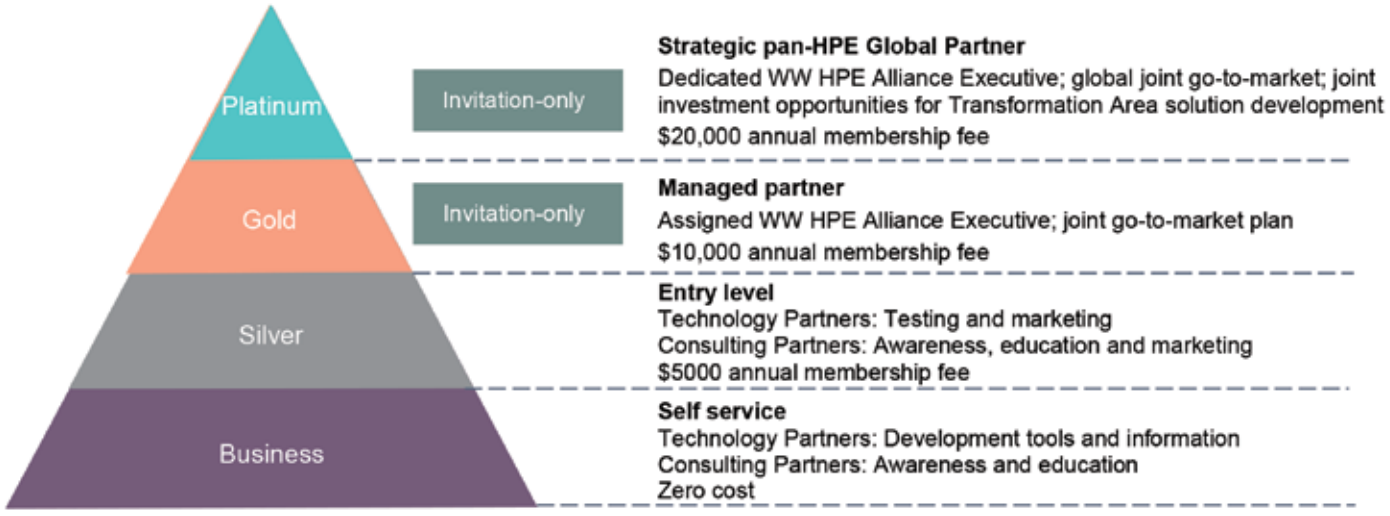

Figure 5: Partner Ready Tiers

Table 1: Partner Ready Benefits to Partners and Requirements Placed on Them

Partner Ready Tier	Benefits to Partners	Requirements from Partners
BUSINESS	• Registered as HPE Technology Partner • Ready program center support and HPE Partner Ready portal access • Partner welcome letter and guide • HPE Alliances monthly newsletter • Participation in HPE NonStop Partner email distribution lists • Participation in NonStop Product Betas (by invitation) • Invitation to DISCOVER events, NonStop Partner Symposiums and product webinars (TekTalks) • Access to engage cross-HPE business units • Access to HPE Financial Services	• Approval by NonStop Business Unit • Sign partner program agreement contract
SILVER	All the benefits of Business tier + • 17 weeks access to NonStop's testing lab (ATC) • Long term annual access contracts available as well • Access to NonStop Development tools • Access to discounts for purchases of NonStop hardware and software (like DSPP program) • Marketing Materials for partner product promotion • o Access to NonStop Partner Insignias • Listing on Partner webpage • One NonStop worldwide field / sales facing webinar (TekTalk) per year	All the requirements of Business tier + • Annual Membership fee of $5000 • Influences $1M+ in NonStop business • Partner identifies an employee to act as Business Manager to work with NonStop • Contribution to HPE partner profile • Contribution to 2-page joint marketing brochure

For example, if a partner completes its Partner Ready enrollment process in November then their 17 weeks clock starts in November. The partner must have used their share of the ATC resources by the next October. Any unused quota will lapse at the end of the one year period. The 17 weeks quota need not be used as one consecutive period. It can be split and used over the year as necessary in consultaton with the ATC incharge. Note that unused weeks do not accumulate or rollover to subsequent years. Additional long term annual contracts for lab time / resources are also available from the ATC directly if a partner requires more than 17 weeks.

The ATC team will provide access support and operational support for the systems. Partner should provide staffing to setup testing environment and run tests on their product. Partner accesses the laboratory remotely through a secure VPN. In special cases HPE can accommodate local access if a partner wants to come to the ATC laboratory in Palo Alto to do the testing in person The partner will be responsible for all expenses.

Note that HPE NonStop will not ship test systems to partner sites as part of this program. The Partner Ready program does not include manpower to do testing, to make modifications or modernize partner's application or product. This type of service can be purchased from the ATC and paid for through the Systems Development and Integration (SDI) group but is at additional cost to the partner and will be under a separate SoW.

Partners who are already engaged in 17 weeks of testing via the AllianceOne program or engaged in a "paid" testing program contract with ATC prior to Dec 31st 2016, can complete this work outside of the Partner Ready program.

Partner Ready and discounted system purchase (DSPP)

Contract terms that governed NonStop systems purchased by Partners under the old AllianceOne program will continue to apply those systems. Everything remains the same if the system has not changed and is still under a support contract with HPE. No change is planned to existing support rates, rights to RVU refreshes, bug fixes, etc. for systems purchased under the old AllianceOne program.

Effective 2016 August 31st, with the end of the AllianceOne program, new NonStop development systems and / or add-ons to existing systems are eligible for partner program discounts, such as the NonStop partner software bundle pricing (DSPP), only if the partner is enrolled in the Partner Ready program.

Purchases under Partner Ready will require execution of a new HPE purchase contract and a NonStop Partner Ready Development System Addendum.

Customer must buy and sustain a support contract from HPE with their systems to receive this discount going forward.

Next Steps – Apply and register into Partner Ready program

Partner Ready program is open for enrolment from September 2016. Partners can go to http://www.hpe.com/partners/technology to submit their applications. For NonStop specific questions or help please contact Sridhar.Neelakantan@hpe.com. For pan-HPE Partner Ready program related questions please send email to program managers Helen.lum@hpe.com or Carl.Shanahan@hpe.com

Sridhar Neelakantan works in NonStop Product Management. He manages middleware and Java based products on NonStop. The middleware products he is responsible for are the ported binaries of Java SE (NSJ), NSJSP, NSASJ, NSMQ, TS/MP, the TMF, iTP WebServer, NonStop SOAP 4, XML parsers and CORBA. He also manages a set of products, that fall under the manageability domain, such as OVNM, OVNPM, SST Ops Bridge, ATM & POS Transactions Analyzers. He has been in HPE & with NonStop for a little more than 5 years. Prior to HPE Sridhar was working in Motorola in the field of cellular networks for many years. Sridhar works in the Bangalore, India office of HPE. His email address is sridhar.neelakantan@hpe.com.

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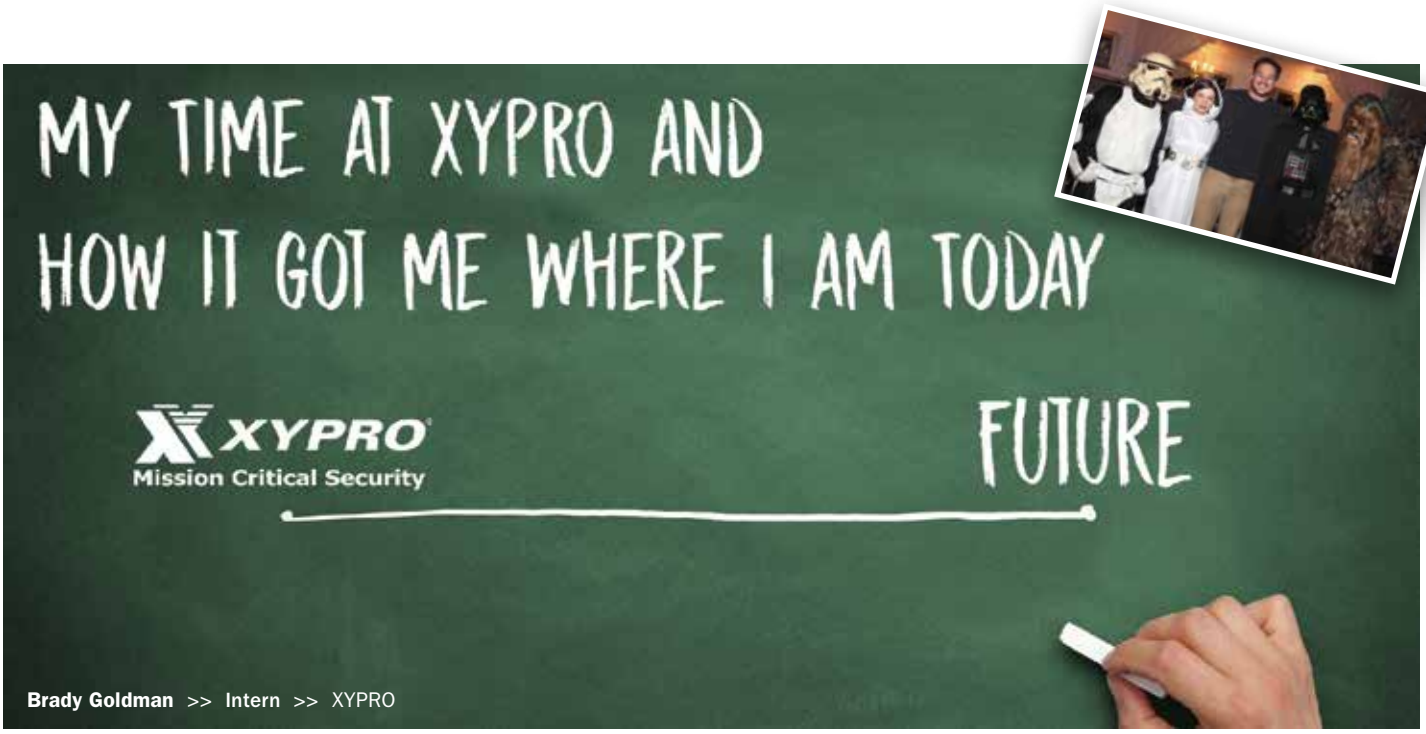

My name is Brady and I am a proud former intern of XYPRO Technology. Currently, I am a Graduate Student at UCSC studying Machine Learning and Data Mining in hopes to apply this knowledge towards making cybersecurity more effective and adaptive. Little did I realize how I would be ultimately led to this point as a result of my experience at XYPRO.

Prior to my time at XYPRO, I was just beginning to take a huge dive into the world of computer science, starting a Master's program at Cal State Northridge and somewhat clueless about the direction I wanted to take. At the time, I was self-taught in the basics of Java and had a few pet projects, the most complex of them an implementation of minesweeper themed on picking up dog poop in one's backyard. I did not have a formal computer science education as I had just recently decided to do a complete 180˚ turn from my previous aspirations as a researcher in the field of nanomedicine.

So here I was one day, at a career fair at CSUN, mostly throwing my resume every which direction. However, XYPRO caught my attention in particular as not only did they specialize in cyber security, which was an area I was pretty interested in at the time, but they also were looking for interns that could program in Java. I was pretty thrilled to hear that they were working on a project involving the use of Spring, a framework which I had been pretty eager to learn about for my own sake. I spent a bit of time at their booth talking to the former interns and representatives from the company and happily left them my resume.

Fast forward past the part of the interview process and whatnot and I get my call from the Development Manager congratulating me and telling me that I got accepted as an intern for the XYGATE SecurityOne project (codename: Tesla). At this point I'm totally ecstatic that I'm about to get my first real experience of working in the industry as a software developer.

My first day in I'm greeted by a few nerf shots from the current development team, immediately giving me the sense that I'll be working in a pretty fun and friendly environment. At the time, SecurityOne was in its infancy. It was nothing more than a basic CRUD application that served as a backbone for upcoming features. Aside from getting our hands dirty with the latest web technologies, what made the project particularly interesting was that we were the guinea pigs of a company experiment to implement SCRUM in an environment that was traditionally waterfall. This proved to be a very useful learning experience and provided our team with a lot of freedom to control our strategies to execute our goals.

As time went by, my role in the project evolved from simply writing unit/integration tests and adding new API calls to being deeply involved in one of the core features of the product, Security Intelligence. It was working on this feature that provided me the greatest inspiration for where I'm at now, by opening the doors to so many new and interesting problems worth solving.

That inspiration was not my only takeaway from my two years at XYPRO. I gained an immense knowledge of various big-time Java technologies such as Spring, Hibernate, Apache Camel, and Esper. I gained a strong understanding of the SCRUM process, and got to learn firsthand it's strengths and weaknesses. Most importantly, I got to be part of turning a bare-bones research & development project into a product we've already started shipping to customers for beta-testing.

All of these things plus working with a wonderful team and having tremendous creative freedom were what made the internship at XYPRO worthwhile and one-of-a-kind. This experience truly sealed the deal in regards to my love for computer science.

Brady Goldman joined XYPRO as an intern in 2014. Brady impressed us so much that we made him permanent part-time while he finished school. Much to our delight and dismay, Brady decided to pursue his post-graduate studies in Machine Learning and Data Mining at the University of California Santa Cruz, where he hopes to apply that education to further his career in cybersecurity. It is important to note that Brady came to us with an open and curious mind but even more importantly, an excellent work ethic and spirit of team success. Needless to say, we would have loved to have Brady stay on full time and were sad to see him go but we're not surprised at his desire to continue his pursuit of knowledge and celebrated with him when he was accepted to UCSC!

Back for More

Richard Buckle >> CEO >> Pyalla Technologies, LLC.

A reoccurring theme of many of my posts and commentaries this year has been the need for greater visibility of NonStop at the CIO level. It's all well and good to say we need to get the attention of CIOs, but in reality, what we want to achieve is greater visibility of NonStop within the customer's IT organization. Another reoccurring theme of mine has been my continuing push for everyone in an IT organization where NonStop is present to show pride in NonStop systems. This pride in NonStop just has to become a lot more visible and it starts with IT organizations making sure every piece of information about NonStop appearing in the ether is shared with all of IT. The good news is there's now many publications focused on NonStop so, when it comes to finding stories that feature NonStop, it's much easier than in times past.

There's no question that there are still reservations among CIOs when it comes to the future of NonStop. The even better news is that any concerns CIOs may have concerning NonStop aren't all that hard to address. Pointing to current publications featuring NonStop and highlighting important messages contained in the pages is making the task a whole lot easier. The Connection is just one of a growing list of sources that we all should be liberally, indeed enthusiastically, leveraging whenever the subject of NonStop is raised.

There's still a lot of work to be done, however. Based on my use of Google searches, when I typed "NonStop" into the search bar, half of the first page returned highlighted the Liam Neeson movie, Non-Stop. I even asked colleagues to do something similar with the same result –a number of new posts were created by them as a result of getting similar results! Wouldn't it be great to see search engines like Google return nothing but articles and posts from a variety of sources, all featuring NonStop systems? Wouldn't it be great if several of them came directly from the NonStop community itself?

From my earliest days as an ITUG volunteer, the leadership at ITUG stressed the importance of content. Indeed, "Content is King!" drove the agenda of the program committee presiding over each and every ITUG summit here in the Americas as well as in Europe. Unfortunately, back then there were very few vehicles that could be used to deliver messages directly to IT. Oftentimes, managers up and down IT no longer thought of NonStop as being critical to their business. However, the lack of information is no longer the case, as today we have a multitude of electronic publications focused on NonStop.

We have The Connection magazine providing valuable insight into NonStop even as it provides a balance across all NonStop stakeholders – HPE, vendors and users. It's an expensive proposition to produce this quality magazine and I trust that everyone takes the time to read each issue of The Connection, cover to cover. There's a fine line between overfilling your inboxes with the latest newsletter and blog posting but on the other hand, after so many years of not having anything arriving at our terminals, it's a godsend these days that so many parties are actively engaged in providing information on all things NonStop.

It would be remiss of me to fail to mention Tandemworld. Under the oversight of longtime NonStop supporter, Dave Barnes, it is published monthly and I have been led to believe that Dave maintains an email distribution list measuring in the thousands – perhaps as many as ten thousand, plus. There's still a considerable amount of self-promotion by vendors involved, but increasingly, there are more and more story lines being included that are of interest to a wider audience. For many years now, I have supported this eNewsletter and I have a lot of fun writing my Musings on NonStop articles. It's also a great place to find out which vendor is attending which NonStop event.

For as long as I can recall former ITUG chairman, Bill Highleyman, has been publishing The Availability Digest. "It has over 2,000 subscribers with another 3,000 accessing the web site directly," Bill tells me. More importantly, as you look at focus for the content, "Mission critical systems need continuous availability, and that is what NonStop systems provide; failure is not a possibility. It is a certainty. Plan for failure." The web site has a very "Useful Links" tab that I have to admit is as comprehensive a list of vendors and supporters as any that is freely available to the NonStop community. I have to add that I am grateful to have the LinkedIn group created, Real Time View, to support the blog of the same name, among the list of Groups promoted by The Availability Digest.

The first issue of a brand new publication Nonstop Insider has now been published and the initial data on its readership has proved positive. The brain child of yet another group of former ITUG and Connect supporters and the NonStop Experts – HPE NonStop / Tandem Services and Solutions LinkedIn group. Its Managing Editor is none other than former ITUG Vice Chairman and Connect Vice President, Margo Holen. "For some time now I have become aware that even with the newsletters and magazines available to the NonStop community there was a real need to provide unfiltered information covering all that is happening with HPE and with NonStop," Holen said in her first editorial. "I consider it the goal of NonStop Insider to provide a variety of perspectives from many parties that continue to work closely with NonStop users." When it comes to further useful links, you may want to check out the new NonStop LinkedIn Group for the NonStop support and services community: NonStop Experts – HPE Nonstop / Tandem.

This year saw the start of my tenth year of blogging, something I featured in the post of August 20, 2016, You want to read more? Posts on NonStop enter their tenth year! It's theme about the NonStop community wanting more content to read is precisely why today we are seeing as many publications as are now being promoted. If you weren't aware of everything that is in print, then you may want to check out those referenced here – and yes, there's a lot more when you add into the mix the many vendor newsletters now circulating widely within the NonStop community.

CIOs everywhere look first to their own IT organization for information on products and services; credibility is highest among those working the closest to the CIO. So all that is left for the user community to do these days is to make sure the many newsletters, commentaries and posts aren't simply left in an inbox. Content is still very much the king so take all the steps you need to take to ensure NonStop content is as visible as you can make it within your IT organization!

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