White Paper

uLinga: Cutting the ties to legacy networks!

Abstract:

Infrastructure is converging! Industry standards are pushing aside proprietary technology and today's corporations value convergence around a single networking architecture. From comForte comes a partnership with Infrasoft, the company that provides uLinga – a family of products for the HP NonStop server that dramatically cuts the costs of data center communications infrastructure by eliminating the need to retain Systems Network Architecture (SNA) protocols for links between HP NonStop servers and IBM mainframes. The availability of the uLinga product family simplifies the transition from SNA to TCP/IP and reduces license and operating costs while ensuring the integrity of existing operational applications.

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Introduction

At a time when corporations are demanding that their Information Technology (IT) organizations provide more services, even as budgets remain tight, Chief Information Officers (CIOs) are looking at ways to lower their costs while minimizing risks. In meeting these corporate demands, CIOs are prioritizing initiatives that promise results in the consolidation of IT data centers and networks, and in the reduction in staff.

Rationalizing the data networks that often overlap with one another, and simplifying the way networks are managed at a time when skilled technicians are retiring and the remaining expertise has thinned to dangerous levels, meets the goals being set today by CIOs. Furthermore, the opportunity to leverage the industry-standard network, TCP/IP, for all communications traffic, with no changes to the applications, addresses the CIOs' concerns about risk outweighing the benefits that has to date delayed any further consideration to consolidate networks.

Consolidating the data networks around a single technology unifies the management of the data network. Visibility of all resources connected to the network greatly reduces operator errors, adds to the stability and reliability of the environment, and eliminates the need to consult multiple support organizations within data center operations. Most important of all, a unified network improves the security of the data center as network management tasks are shared by all responsible staff. Costs continue to be reduced and service levels improve as common tools, and the consistency that develops from repeated use, minimizes operational errors.

Although its demise has been predicted for more than two decades SNA continues to maintain a presence in the data center. It's as if this legacy networking architecture, with its original narrow focus connecting client terminals to IBM mainframe applications, will stay with us long after its original intent has been forgotten. SNA has served corporations well for many years, and SNA has become so firmly entrenched that there is uncertainty among today's CIOs over potential benefits from severing ties to the technology. The risks that are associated with exiting from SNA continue to un-nerve CIOs, who often simply view SNA's remaining usage as nothing more than a minor irritation, yet these risks pale in light of just doing nothing. Minor irritations will become major headaches as the support for SNA disappears from vendors' roadmaps and CIOs are forced into taking even bigger risks with even less resources as they try to catch up.

In a press release on December 9th, '09 comForte announced that "comForte and Infrasoft sign joint development and marketing agreement," and comForte is "very pleased to join forces with Infrasoft, which allows us to create a strong alternative to existing software solutions … (and of how comForte is) responding to customer demand for such a solution." Together, comForte and Infrasoft have developed a software solution that initially enables communications between HP NonStop servers and IBM mainframe running CICS and IMS applications. This software solution will be marketed and sold under the brand name "uLinga" and it will be a family of products aimed at helping data centers transition to TCP/IP and away from SNA. When installed on the HP NonStop server, uLinga enables communication with CICS and IMS "SNA applications" without any need to change application code on either platforms or deploy SNA links between them.

There is considerable value to be derived from implementing a break-through product that eliminates the need to retain redundant replicated networks, requires no application changes on platforms at either end of the link(s), and is based on industry standard technology. In the past CIOs may have been reluctant to make changes as the risks had been considered too high but now, requiring only configuration changes, a much stronger case can be established for finally eliminating the data center's last SNA connections. With the introduction of the uLinga product family, steps can be taken that help the data center manager deploy a unified data network infrastructure that better meets the demands for lower operational costs.

Why Change? — The business issue!

Across the IT landscape, much of the business data used by corporations is under the management of IBM mainframes, supported by CICS and IMS applications where SNA continues to be relied upon for the communications with these applications. These transaction-processing subsystems support so many business-critical applications that their migration from SNA has not been seriously contemplated. The risk of disrupting any of the business operations that they support carries a price tag that is too high to pay and for many years it's been considered prudent to leave them alone.

However, IBM's latest mainframe offering, the System z/10, comes with high-speed Ethernet LAN connectivity and with the latest version of the OSA / Express adapters, together with the new OSA/Express Direct I/O (QDIO) software, that can only be truly exploited when configured in support of TCP/IP. Support for Token Ring LANs for example, has been dropped. Products available from many vendors (IBM, HP, Cisco, etc.) that supported SNA over IP, including HPR/IP, cannot take full advantage of these latest adapters and access methods from IBM. Migrating to TCP/IP is the only way forward to capitalize on the full potential of this latest technology.

HP's NonStop Enterprise Division (NED), following the announcement of the network Cluster I/O Module (CLIM), is taking a similar path for its communications products. CLIMs are TCP/IP-centric and optimized to support only IP network connections. Corporations with SNA networks should be reviewing any further dependence upon SNA and their end-users need to be aware of the costs associated with duplicate network architectures, their management and support, especially at a time when the economy is fostering a business climate of doing more with less!

Industry analysts have for many years been advocating the migration away from SNA and have been throwing their support behind industry-standard TCP/IP. The Gartner Group was among the first to report, in the early '90s, of how "users with SNA as their primary protocol will spend a total of 20% more than IP users on training staff, hardware and software purchases, and administration." In its most recent survey of Global 2000 firms, and as part of its 2008 Global Enterprise Telecommunications Survey, the American company IE Market Research Corp reported that among the key topics covered were "the pace of migration from legacy technologies will jump in the next two years" as well as "Convergence is still 3-5 years away as far as IP-networking is concerned."

Corporations today are revisiting their decision to stay with SNA product offerings on HP NonStop servers (e.g. ICE, SNAX) and their goal is to completely eliminate SNA networks from their data centers in favor of TCP/IP! They have seen the inroads TCP/IP has made into every corner of the data center and the expertise that is readily available, and they want to standardize on an industry-standard technology. Server manufacturers and software vendors alike are lessening their product support for this legacy protocol and making it expensive to retain.

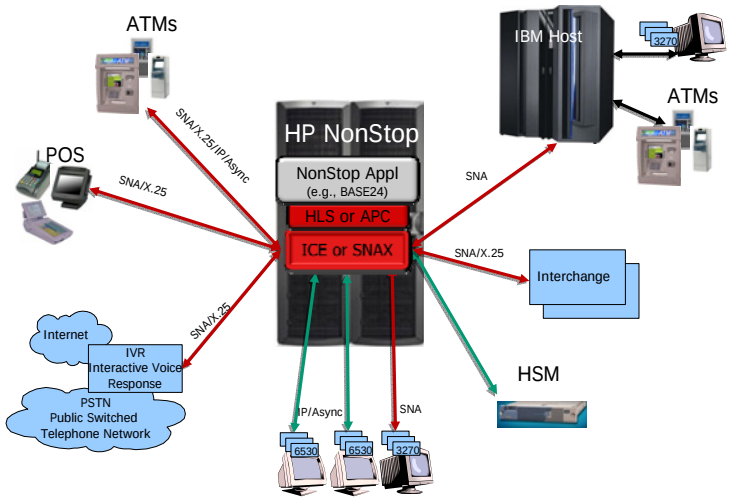

Figure 1

The above illustration (Figure 1) is of the network connections for a typical NonStop application supporting SNA networks. Migrating networks of client devices off SNA and onto TCP/IP had been a relatively straight-forward task as today's client devices all come pre-equipped to support TCP/IP. However, mainframe applications, with their awareness of the SNA protocols and their dependence upon SNA message formats, have proved difficult to migrate and continue to rely on SNA networks in order to interact with other host applications. Moving off legacy SNA, however, is unavoidable in the long run and delaying the process only makes the eventual migration all the more difficult as, with each passing month, fewer technical skills remain to assist should anything go wrong. Corporations with solutions from vendors other than IBM are looking to eliminate SNA from their shops will want partners they can depend upon, with proven expertise in networking, just as much as they want products that are affordable and with the stability that only comes from a converged, unified, industry-standard TCP/IP network.

Value from the product? — Momentum Shifts … deal with complexity!

The observation of how things are always changing just reinforces the fact that now is the right time for moving from legacy networking architectures to embrace industry standards. The uLinga product family is being introduced as CIOs prepare to move away from any further dependence on SNA and to consolidate all network traffic on a single, industry-standard TCP/IP network. Developed by a team with decades of experience in SNA and TCP/IP, uLinga mandates no application code changes and with uLinga installed on the NonStop server, formerly competing network solutions can be consolidated onto TCP/IP resulting in unified network management and security.

SNA remains a complex technology to master and the lack of qualified personnel, as many begin to leave the marketplace and enter retirement, is further fueling the momentum behind the switch to TCP/IP. As recently as 2007, when Computerworld began polling users to identify skills that would be dying, starting 2008, Non-IP Networking skills ranked third! According to the results of their survey, as reported by reporter Mary Brandel, "TCP/IP has largely taken over the networking world, and as a result, there's less demand than ever for IBM SNA skills." Despite the fact that many banks, insurance firms and other companies still have large investments in SNA networks, the educational offerings in this area are also rare, according to some respondents of the Computerworld survey, adding "the dominant model of protocols is TCP/IP and the Internet technologies!" David Foote, president of Foote Partners LLC in New Canaan, Conn, suggested that SNA skills today were "worth virtually nothing on the market." Foote then added that it's "like a penny from 1922 - there has to be someone who wants to buy it."

"This does not mean, however, that SNA is dead. What it does mean is that SNA mission-critical applications are no longer the cornerstone of commercial-sector computing," according to an October 14th, 2009 column by Anura Guruge in NetworkWorld, who then closed with "the result of all these converging trends is that SNA-specific backbones – the quintessential mainframe networks of the last two decades – are now anachronisms. It's clear that we in the SNA community must come to terms with living in what will be a TCP/IP – dominated world. The good news is that there is plenty of technology to make this transition as painless as possible!"

SNA met corporations' networking requirements for many decades and as the needs of the users grew more complex, so did the architecture. Only a small population of technicians fully comprehended the complete architecture and as they begin to retire, the ability to fill the vacancies has become a liability for the corporations still relying on SNA networks. At the same time, user pressure continues to mount for easier access to the business logic and data under the management of the applications using industry standard network protocols and services, and now that IBM has added the functionality to CICS to support access from TCP/IP clients, the momentum to move away from SNA will only accelerate.

For those corporations that move quickly, and eliminate complexity, there will be greater potential to innovate. Coming as it is at a time when CIOs are experiencing difficulties with retaining skilled SNA personnel uLinga, requiring no changes of the application code, will be seen as the low risk migration solution that they so urgently need. In the current business climate where mergers and acquisitions show no respite, few CIO's want to face hostile board over their failure to accommodate a potential acquisition over network connectivity issues. However, with a simplified, industry-standard networking infrastructure, they will be able to capitalize on situations that may develop and where their competitors are unable to address the business opportunity because of network incompatibilities.

Marketplace dynamics! — What you should know…

Corporations will depend on TCP/IP as the sole unifying network fabric that integrates their business solutions and, at every opportunity, will earmark further investments in TCP/IP whenever there is a need to expand the network's reach and capacity.

No discussion on networking, and on the impact that it will have on the data center, can overlook the need to consider the future of the data center. With so much being discussed in the media, and at industry analyst forums, about enterprise cloud computing, virtualization, software as a service, it predicates that the network is based on a single industry-standard technology, TCP/IP.

The data center will continue to evolve – and HP NED emphasizes in their marketing messages "Blade everything!" The message of Blades is modernization, commoditization, utilizing standards and open interfaces, and today it applies as much to software as hardware. HP continues to leverage its own success as it consolidates its IT operations, and now promotes data center transformation as a way to help enterprise data centers reduce costs, manage risks, and provide the business agility required to support corporate growth. As HP's internal IT consolidated around six data centers in three locations, it opted for dependence on open solutions and industry-standard technologies, and TCP/IP provides the unifying foundation for the network.

Major vendors all recognize the evolution under way within corporation's data centers. Cisco unveiled its strategy in April, '09 and began promoting its vision of the unified data center, explaining how Cisco has "an opportunity to completely re-imagine the way we look at enterprise computing. Within this new vision for the data center is an integrated management platform that combines what they describe as a 'wire once' unified fabric and API."

The HP NonStop system remains unchallenged as the most available platform. For NonStop to participate in the configurations anticipated in future data centers where cloud computing, SOA, and application virtualization dominate, all NonStop applications will be required to seamlessly network with everything else in the data center using a common network – TCP/IP. Investments made today in eliminating any further requirement for legacy network architectures and allowing convergence around a unified and open TCP/IP fabric, can only help accelerate the further adoption of NonStop.

With the availability of the product uLinga, network convergence can now be pursued in a low-risk manner that will find acceptance with every CIO. In partnership with comForte, with the depth of experience in NonStop and networking that it demonstrates, corporations have the expertise on hand that they may otherwise lack. Investments made today must be in pursuit of simplification, ease of management, and flexibility – corporations have to exhibit agility to remain in tune with fluctuating market conditions and in order to remain relevant in their defined market segments. Unified network fabrics can become a reality as uLinga provides an innovative way to complete the transition to a fully TCP/IP centric networking infrastructure which will help eliminate the prospect of letting business opportunities escape!

Costly proprietary systems are being phased out and are being replaced by cheaper, industry standard solutions. Components once found only in the Internet are being relied upon to support a unified data center communications infrastructure. Investments that are being made support a data center that will provide the business flexibility and agility for corporations to remain competitive. comForte, together with Infrasoft, can now expedite the transition to TCP/IP even when the complexity of the deployments concerned CIOs and can help better position the data center for new technology and solutions that will be driving IT investments in the coming years.

Availability of the product, uLinga! — A technical introduction

IBM has for some time recognized that SNA will not play a strategic role in future networking product offerings. As the complexity of SNA networks of the early 1990s outpaced the ability of the corporations to support it, network architects began to look for alternatives. IBM executives expressed concerns about the future of TCP/IP and whether it could accommodate the network growth anticipated without adequate prioritization and congestion control mechanisms. Some of these same executives went so far as to join with industry watchers when they suggested that TCP/IP was a “train wreck about to happen.”

As the industry began to throw its full weight behind the technology, however, IBM succumbed to its growing statute as the industry-standard networking solution and began de-emphasizing older proprietary architectures. When IBM partnered with Cisco in the mid ‘90s, it signaled a shift away from any dependence on SNA. HP on the other hand has always been a strong supporter of TCP/IP and its latest products demonstrate its ongoing support of open architectures. The need to find a low-risk solution for NonStop users that helps them migrate away from SNA has become a priority, and with the uLinga family of products, this low-cost, low-risk option will prove to be a highly attractive option.

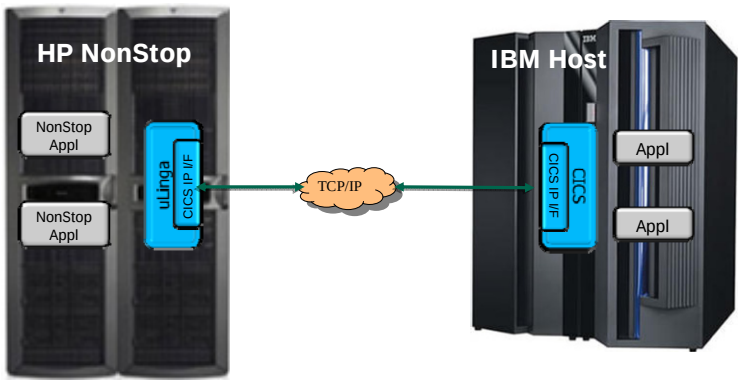

Figure 2

Perhaps the biggest problem for IBM has been the visibility of the underlying SNA network infrastructure to CICS and IMS applications. These applications make use of SNA services, and migrating the network infrastructure to industry-standard TCP/IP necessitated the development of additional services by IBM for both CICS and IMS. Today, for the first time, similar services have become available for NonStop applications accessing these IBM SNA applications, as the uLinga product family offers a way out from any further dependence on SNA network connections between HP NonStop servers and the IBM mainframe. The above illustration (Figure 2) is of the network connections between the NonStop and IBM mainframe applications using TCP/IP once uLinga has been installed on the HP NonStop server.

The uLinga product family is made up of unique features targeting CICS and IMS applications, as well as custom IBM 3270 pass-through configurations. Each of these configurable features can be requested as part of several NonStop server packages, each of which has been designed to support different NonStop transactional solutions including Pathway applications, as well as major solutions such as BASE24, etc. Each of the features in the uLinga product family runs as a non-privileged nonstop process pair. These processes use standard NonStop facilities such as EMS. Online configuration is provided by either a simple command-line facility, or via HTTP, using a standard web-browser.

The first product of the uLinga product family to be released will enable access to CICS applications. It will be well-suited to Pathway, BASE24, and any home grown application on NonStop that needs to access the resources under CICS’s management. The implementation will require no code changes to applications on either the NonStop or IBM mainframe server. To enable the IBM CICS TCP/IP connectivity component it only requires a small change to the network configuration. With the size of the installed base for CICS, this first release should address the needs of the majority of NonStop users looking to migrate their connection to the IBM mainframe from SNA to TCP/IP.

It is the flexibility of the implementation inherent within the framework supporting the uLinga product family, that a number of uLinga products supporting multiple transactional applications will come to market quickly, and that each package will target a different IBM application. Future releases of the uLinga product family will address IBM applications other than CICS with support for IMS to follow shortly, as well as platforms other than NonStop, with a Windows version most likely to appear next.

The migration from SNA shows no signs of slackening nor does the resolve of IBM to fully embrace TCP/IP shows any signs of wavering. For the NonStop user this only increases the sense of urgency to fully understand the implications and to develop partnerships with vendors whose products can lessen the risks involved. The uLinga family of products is an attractive option and goes a long way toward helping NonStop users embrace a unified, industry-standard networking solution.

Commitment from the vendor, comForte! — Leveraging a partner's strength!

comForte has been providing solutions in the NonStop marketplace for over ten years and has products deployed at more than 500 enterprises worldwide. The company is focused on providing innovative solutions in a select number of technology segments, among them, better access to server information. For many years, comForte has been a key provider of client access solutions and with the uLinga product from Infrasoft, introduces solutions that better connect HP NonStop servers to the IBM mainframe.

Infrasoft is a new HP NonStop partner. The company was created by former members of the Insession development team – including the architects and developers of the ICE product that supports SNA on HP NonStop servers. ICE has served corporations well for two decades, and remains in widespread use at many sites around the globe. The team includes those responsible for the development of the most recent ICE feature – the support of HPR/IP on NonStop. Infrasoft personnel are recognized across the NonStop community as having the best working knowledge of SNA as used on NonStop and are well positioned to provide products and expertise to address migrations to TCP/IP.

The addition of the uLinga product family to comForte's product offerings is consistent with the company's overall objective of providing solutions based on industry standards. Addressing their customer's requirements with an inexpensive and low risk way to replace legacy SNA with industry-standard TCP/IP fits well with comForte's strategy. Pursuing this strategy has also helped comForte work more closely with HP NED, who have already selected comForte's SecureSH product to encrypt communication to the NonStop Console (already shipping pre-packaged with MR-Win6530 terminal emulation) and today, the product is available from HP as the HP NonStop SSH. HP also relies upon comForte's SecurLib/SSL product to encrypt the TCP/IP connection for HP's Open System Management product offering. These successes with HP have helped position comForte in the marketplace as one of the most experienced and trusted vendors working with TCP/IP.

Together comForte and Infrasoft have many years of experience in working with the HP NonStop development team, and both retain strong ties to major solutions providers, including ACI Worldwide. Founders of both companies at one time or another were part of ACI Worldwide and have substantial working knowledge of the BASE24 product – the most widely deployed solution on NonStop and the biggest user of SNA for HP NonStop to IBM mainframe connectivity. uLinga is not only of value to BASE24 customers, as any solution running on HP NonStop servers needing to interact with IBM mainframe applications can take advantage of it, but in being the biggest user of SNA, BASE24 customers will most likely be among the first to deploy uLinga.

The commitment from comForte, working with its partner Infrasoft, is to ensure corporations that have depended for so long on HP NonStop servers, and have retained SNA for links between their applications and those on IBM mainframes, can instigate migrations to TCP/IP. The most important issue, however, for these corporations has been finding the right products from the right partner! To be certain that they obtain the value that only comes with solutions that last and are priced right! In the comForte press release of December 9, '09 the company went on to state: "We are responding to customer demand for such a solution and by leveraging Infrasoft's highly skilled development team with a lot of experience in developing solutions for the communication between HP NonStop and IBM mainframe systems and comForte's expertise in communication middleware and security solutions, we are well positioned to offer a best-in-class yet cost-effective software solution."

Conclusion

The availability of the uLinga product family marks the first time HP NonStop users can give serious consideration to migrating off SNA. Today, the choice in networking architecture across all of HP is TCP/IP and all new hardware, software, and supporting middleware presuppose the presence of TCP/IP. In joining forces with Infrasoft, comForte will market uLinga worldwide to offer HP NonStop users the opportunity to migrate from SNA to TCP/IP seamlessly and transparently, with lower risk to the business-critical applications that are relying on SNA today.

The success of the uLinga family of products will come from four critical attributes:

1. Lower costs, less risk - no changes to the applications

   With the implementation of uLinga packages for specific NonStop applications, for instance, uLinga for BASE24, NonStop users will not be required to make any application code changes thereby minimizing risk with a lower-cost alternative to continuing with SNA networking.

2. Consolidate the network - simplification of hardware and software services

   In migrating to TCP/IP, convergence on a unified, integrated, network fabric greatly simplifies the hardware, controllers and adapters, as well as the software services needed, in order to access the network.

3. Unifying data center management – rationalizing operational skill-sets

   Consolidating on an industry-standard network like TCP/IP also ensures common data center monitoring and control applications can be shared by all operational staff that today are more familiar with the oversight of these modern technologies. And data center wide consistent security tools can be deployed.

4. Improved security – consistency, data center wide

   Security has become a major concern for all with data center responsibilities and eliminating the need for additional products just for these SNA network connections has made security management much simpler. uLinga plugs the hole that had opened when transporting SNA sessions, such as over UDP, in the clear.

“I think of something that will last; I think of something that's priced right!” explains Brett Favre, an American football icon, in a commercial describing the value he places to his jeans. And it’s no different when it comes to assessing the value proposition of new infrastructure products. In looking at the choice of vendor and product, it is highly critical that a partner with a proven track record in developing and supporting network protocols is important as is their history of providing value. In partnering with Infrasoft and the development team that brought ICE to NonStop users, comForte is assuring the NonStop community that they can satisfy both objectives and provide the value being sought today by NonStop users.

With the arrival of the uLinga product family, NonStop users that relied on SNA protocols can now utilize TCP/IP connections, and can view pursuing the migration as a priority. The SNA networks need to be changed otherwise legacy infrastructure needs to be maintained at a time when there’s an increasing shortage of skill-sets and components. The applications that had been deployed over SNA need to move onto TCP/IP so as to be fully visible to all data center personnel charged with their oversight. Servers that retained legacy hardware need to be upgraded to capitalize on more modern packaging and infrastructure controllers, adapters, and interfaces.

Widely read author and journalist Peter Egan (Side Glances, Leanings, and columns in Cycle World and Road and Track) lamented the passing of several manufacturers with the comment “I know things change …. (but) sometimes readjustments are overdue, and other times they’re hard to fathom.” When it comes to migrating from SNA to TCP/IP the logic is not hard to fathom and for many corporations, readjusting their network as they converge their networking infrastructure, is something CIO’s know they now have to seriously consider. The pace of migrations away from legacy architectures like SNA will only accelerate.

uLinga creates an opportunity for corporations to be more responsive to their changing market conditions and removes any remaining barriers to better integrate with the networks of business partners and customers. Corporations cannot afford to miss any business opportunities because of incompatible networks! Loosing business to a competitor due to competitor’s preference for industry-standard connectivity, given today’s highly competitive market conditions, is a risk few corporations can afford to take. CIOs everywhere are looking for IT to be better aligned with the needs of the

business, and for NonStop users, the uLinga product family makes the transition to TCP/IP as painless as possible and ensures that opportunities will never again be missed because of network incompatibilities.