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NET UX1000 - PREVIEW PODCAST

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[Network Equipment Technologies, Inc.](#) is preparing the launch of the next member of the UX family of network appliances: the UX1000. NET Chief Development Officer, Talbot Harty, recently sat down with [Jim Burton](#) of UC Strategies to discuss the challenges being faced by UC Architects and the innovative ideas that coalesced into the UX1000 design.

- [NET's Talbot Harty Discusses Next Member of UX Family](#)

Key Challenges Facing Enterprise UC Architects

According to a range of research reports, the proportion of the enterprise workforce that is based in branch offices can be anywhere from 30 to 90%, depending on the industry sector and the organizational topology. Furthermore, the growth in the number of branch offices is variously reported to be between 8 and 11% annually, driven by:

- The imperative for enterprises to seek the best qualified staff regardless of location
- Lifestyle trends that are taking these employees away from major metropolitan areas
- The reduction in corporate travel and relocation budgets
- The availability of unified communications (UC) that facilitate remote collaboration and telecommuting

These organizational trends are diametrically opposed to the trend towards consolidation of business infrastructure into data centers, particularly for communications. Yet, in the Internet era, the expectation of branch-based staff for

access to the same business tools that are available in corporate headquarters is higher than ever. This can result in remote sites consuming 70 to 90% of corporate IT resources.

In the era of globalization, companies (and therefore IT architects) constantly have to find ways to do more with less. The increased distribution of staff combined with the centralization of infrastructure creates a series of new challenges for IT staff:

1. How to deliver cost savings through centralization while at the same time providing a high level of technology support for branch office workers
2. How to maintain business continuity in a large corporate IP network when servers and clients are separated by vast distances
3. How to support a phased migration from legacy infrastructures to new infrastructures
4. How to administrate branch office infrastructure when branches no longer have local IT staff
5. How to secure branch office networks while maintaining connectivity to local IP and telephony networks to provide 'least cost routing' cost savings and IP network failover

In other words – how can you have your cake and eat it too?

How the UX1000¹ does More with Less

The branch office architecture conundrum described above sounds like a trailer for another 'Mission Impossible' movie. Let's take a look at how each issue is addressed by the NET UX1000:

Minimizing Branch Office Infrastructure

One of the challenges of fully equipping a branch office is that all of the infrastructure functions that are required in a Regional or Corporate Headquarters are also required in a branch office. However, the branch office has a smaller number staff, so the infrastructure cost per head is much greater; it is this issue that is driving the trend towards greater centralization. However, some infrastructure cannot be centralized; including:

- The branch office switch
- A survivable branch gateway
- Analog telephony/fax gateways
- PRI/SIP Trunk gateways (especially for branch offices that are served by different carriers from those of the data center; international offices are a particular case in point)
- TDM/IP telephone gateways for the legacy branch PBX
- Network edge security elements such as:
 - NATs
 - Session Border Controllers

A typical branch office today has many or all of these elements. In order to reduce the branch office infrastructure to an absolute minimum, the UX1000 comprises all of these functions in a single appliance form factor.

Remote Management of Branch Office Infrastructure

Remote element management is a must-have component of the IT centralization strategy. However, having multiple remote element types to manage reduces the advantage that is gained. The intuitive browser interface of

¹ Note that many of the architectural features mentioned in this paper are inherited from the UX platform architecture and therefore are also features of the UX2000 as well as the UX1000.

the UX1000 not only facilitates the management and administration of the multiple infrastructure functions listed above, it also combines the management of the Microsoft Survivable Branch Appliance (SBA).

Business Continuity in an IP Outage

The paradox of the centralization of IT infrastructure is that branch offices are distributed business operations leveraging common resources. In the event of an IP outage or loss of connectivity to the data center, the branches must be capable of continuing business independently in order to avoid a global shutdown. The UX1000 incorporates several features to accommodate this:

- Dual T1/E1 ports allowing two ISPs to provide IP connectivity, thereby reducing the dependence on a single ISP
- Up to 24 FXO/FXS ports providing access to analog/TDM connections that are independent of IP networks
- An onboard installation of the Microsoft Lync SBA to ensure that branch deployed Lync clients can continue to provide communications capabilities in the event that the access to the data center is lost

Phased Migration from Legacy Systems

At any point in time in the migration from legacy systems to UC infrastructure, the typical branch office will comprise various combinations of the following:

- Lync clients
- Analog and TDM phones
- SIP phones
- TDM and IP PBXs
- Fax
- PRI/BRI/Analog/SIP Trunks

Each of these elements must interoperate, without creating artificial communications silos within the branch office. The UX1000 is capable of providing interoperability between all of these elements, providing either a seamless migration from legacy to UC or long-term co-existence of all of the elements listed above.

Ensuring Branch Office Security

The advent of the Internet age not only opens new opportunities for productivity enhancements, it also opens new opportunities for malicious attack through branch office IP network edges. The UX1000 includes a Session Border Control function (aka B2BUA) that protects the corporate network from intrusion and IP-borne assaults (e.g. DOS attacks). Additionally, the Call Admission Control function protects the branch network and the data center WAN link from being overwhelmed by the high bandwidth requirements of codecs normally used in UC sessions.

UX1000 – Architected for the Demands of the UC Era

Realizing that the previous generation of IP gateway architecture was inadequate for the heterogeneous and rapidly evolving corporate communication needs, Network Equipment Technologies embarked on an ambitious project to build a brand new architecture for the UC era. This necessarily includes the migration from legacy infrastructure as well as the long term deployment and accommodation of new infrastructures, including some that are yet to be widely deployed (e.g. desktop video).

Modular Architecture Enabling a Right-sized Deployment

Based on the same modular architecture and software as the UX2000, the UX1000 is sized for a branch office of up to 500 people². The chassis design allows various sizes of interface cards to be installed to accommodate smaller and larger branch offices as well as different mixes of legacy and IP technology.

The specification and delivery of a customized UX1000 appliance is being facilitated via a unique 'Configure to Order' process that has been created by NET. The final assembly of the modular components is being moved from the manufacturing process to the supply chain to ensure that customers are able to individually specify each UX1000 element and reduce the order fulfillment time to the absolute minimum.

5 Key Questions to ask your Server Branch Appliance Vendor

When conducting a side-by-side comparison of vendor data sheets, it is easy to assume that the data being presented is 'apples to apples' data. There are often hidden assumptions in the capabilities and performance data being presented. Here are 5 key questions to drill down on with any Server Branch Appliance vendor:

1. Does your remote management interface manage the Lync SBA as well as your appliance?
2. Does your appliance concurrently handle:
 - a. Any-to-any switching: e.g. RTP to RTP, RTP to TDM, TDM to TDM?
 - b. Transport layer intermediation, e.g. UDP to TCP, UDP to TLS, TCP to TLS?
 - c. Transcoding: e.g. RT Audio to G.729, G.711 to G.729?
 - d. Signaling intermediation: e.g. QSig to SIP, SIP to SIP (aka header manipulation)
 - e. Encryption/Decryption: e.g. RTP to SRTP
3. Are your concurrent user/call numbers based on a 'sunny-day' or 'rainy-day' scenario; i.e. do they assume:
 - a. 'Media by-pass'?
 - b. Transcoding?
 - c. Encryption?
 - d. Any-to-any intermediation?
 - e. Remote worker connectivity?
4. Does your appliance support multi-ISP registration?
5. Has your network edge security function been certified by an independent 3rd party test vendor?

Conclusion

The UX1000 solves a range of problems being presented to the IT Architect when faced with building a branch office network for the UC era. By reducing the number of required network elements and the complexity of managing those elements, UX1000 addresses the cost reduction challenge. By providing a right-sized and modular architecture, UX1000 allows legacy and UC clients to peacefully coexist at a low price point. By offering a range of failover and security oriented features, the UX1000 addresses the challenge of maintaining business continuity in an IP centric era.

Can you mix legacy and UC infrastructure? Can you reduce cost and increase functionality? Can you centralize and distribute at the same time? Can you have your cake and eat it too? With the new UX1000 from NET, you can have your UC Branch office network and afford it too.

² The large branch office market segment is addressed by the [NET UX2000](#). Since every corporate facility is normally remote from the data center, the UX2000 could also be deployed in corporate/regional headquarters. UX2000 can serve up to 6000 users acting as an Enhanced Gateway and up to 1000 users when used as an SBA.

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