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Top 10 Issues & Events Affecting Networks in 2006

It's the time of year when newspapers come out with their top 10 lists for topics such as the best movies of the year, the best concerts, or the best books. Given that, it seems fitting that I use this IT Impact Brief to discuss what I think are the ten issues and events that had the biggest impact on networking in 2006. In point of fact, I believe that the issues discussed below will also have a major impact on networking in 2007.

1. Streaming Events Became More Wide Spread

For most IT organizations, the budget for ongoing operations in 2007 will either be equal to the 2006 budget or possibly up a few percentage points. With all of the additional legitimate business demands being made on the network, the last thing that an IT organization needs to see is the growth of bandwidth-hungry recreational applications. However, in 2006, on-line streaming of both sports and entertainment became much more common than it had ever been before.

Perhaps the best example of this is that in 2006 CBS offered live feeds of NCAA's March Madness. Fans could view tournament games for free on NCAASports.com, which is powered by Sportsline. It should not be much of a surprise to anyone that the games set records for on-line audience numbers. Since some companies banned CBS.com in the office, the TV network installed a "Boss Button" on its site. This button quickly turned the screen into a bogus spreadsheet for employees who needed to pretend they were working¹. But it was not just basketball that is being streamed. In June, when soccer fever took hold in the United States and elsewhere, ESPN offered free streaming World Cup games online through Verizon, Adelphia and other carriers.

We have all also seen and heard the ads that encourage people to stream their favorite radio shows. One ad that really got my attention said something to the affect of "You can stream this radio show to your PC at work until the folks in IT find you."

¹ Media Week March 6, 2006

² Business Week December 18, 2006

³ New York Times, December 10, 2006

2. The Rise of Multimedia

In addition to the growth in streaming events, 2006 also saw the rise of multimedia, with the ascension of YouTube, MySpace and also the increase in multimedia emails. Playing off the old adage that if you snooze you loose, I find it hard to believe that YouTube began less than two years ago. It now is the Web's 14th most popular site, attracting 81 million monthly visitors to its collection of quirky videos². YouTube is more than a fun activity for people with too much time on their hands - it is also big business. In case you missed it, in late 2006 Google bought YouTube for \$1.65 billion.

A few months prior to YouTube being acquired by Google, media mogul Rupert Murdoch bought MySpace, another wildly popular, user-generated site for \$580 million. Both these sites are essentially empty - except for the flood of video musings, blog entries, homemade art, personal web pages and other forms of self-expression of millions of folks with something to say in the United States and beyond³.

2006 also saw the rise of multimedia emails. This relatively simple technology lets senders include video clips in emails, create email stationary for clients, and creates different animations for each department in a company. The last thing that any IT organization needs is to have employees of their company come back to work the first of the year and decide to share with all of their colleagues a video of the ski vacation they took over the holidays.

3. Voice over IP crosses the Chasm

Voice over IP (VoIP) has been a hot topic for years. That being said, in 2006 I saw fewer articles in the trade magazines about VoIP than I have seen in previous years. My general belief is that you only see a lot of articles in the trade magazines about a

given technology early in the life cycle of that technology. Once the technology becomes mainstream, it is no longer as interesting to the trade magazines and so you see fewer articles.

Based just on that belief, I can argue that VoIP has crossed the chasm. However, there is a lot of general market research that also makes that case. For example, a recent study by Steven Taylor⁴ indicated that roughly seventy percent of companies have deployed some form of VoIP.

Earlier this year I surveyed the NetScout community on their use of VoIP. Two thirds of the respondents to that survey indicated that their organization had already deployed VoIP. This result is clearly in line with the results of the Taylor study and confirms that statement that VoIP has crossed the chasm.

As I look forward to 2007, I think that we will continue to see a lessening in the number of articles in the trade magazines that discuss VoIP. However, we will also see a corresponding increase in the number of articles that discuss Unified Communications, which could be considered to be the next generation of VoIP.

4. MPLS Gains Mainstream Adoption

There is an important relationship between VoIP deployment and MPLS deployment. MPLS is an any-to-any network and VoIP tends to require any-to-any connectivity. If a company has only made a minor deployment of VoIP, it is quite feasible to support that deployment on a hub-and-spoke Frame Relay or ATM network. However, as the deployment of VoIP increases the use of a hub and spoke network to support VoIP traffic becomes less and less feasible. As a result, companies that are looking to broadly deploy VoIP are likely to move away from a Frame Relay or an ATM network and to adopt an MPLS network. Analogously, companies that have already adopted MPLS will find it easier to justify deploying VoIP.

Earlier this year I surveyed the NetScout community on their deployment of VoIP. The results of that survey confirmed the linkage between VoIP deployment and MPLS. In particular:

- The majority (58%) of the companies that are implementing new deployments of VoIP are also implementing MPLS
- The majority (54%) of the companies that are expanding their existing deployments of VoIP are also implementing MPLS

However, I don't want to give the impression that the only reason that companies are deploying MPLS is to support VoIP. Many of the companies that I spoke with stated that they were deploying MPLS for cost savings. Given this motivation, I expect to see additional deployment of MPLS in 2007.

5. Web Services-Based Applications See Increased Adoption Rate

Part of the difficulty of discussing the adoption of Web Services is that there are so many different but related meanings that are associated with that phrase. For example, in some instances the phrase Web Services is used to refer to the trend to having a Web front end to an application. This is an important trend in part because it introduces chatty protocols, such as HTTP and HTTPS, into the network. It also introduces XML, which is a dense protocol. By dense I mean that communications based on XML con-

sumes more IT resources (i.e., WAN bandwidth, CPU cycles) than communications that are not based on XML.

Particularly among the applications development community there is growing acceptance that the phrase Web services refers to reusable software modules that can be accessed over an IP-based network. Web services-based applications are gaining acceptance among application developers because of this reusability.

In a Web services-based application, the Web services that comprise the application typically run on servers that are housed within multiple data centers. As a result of housing the Web services in multiple data centers, the WAN impacts multiple traffic flows and hence has a greater overall impact on the performance of a Web services-based application than it does on the performance of an n-tier application.

My belief is that while Web Services-based applications have seen an increased adoption rate, we have not yet seen the full impact on network management. However, I expect that we will begin to see that impact in 2007.

6. The Breadth of Business Process Re-Engineering

As mentioned above, there is a strong linkage between VoIP deployment and MPLS deployment. While not as strong, there is also a linkage between the deployment of Web services-based applications and business process re-engineering. In particular, based on feedback from the NetScout community, the primary reason that your organizations have deployed Web services-based applications is the requirement to support more efficient business processes.

I also surveyed the NetScout community on their company's use of business process re-engineering. One of the results of that survey is that roughly three quarters of companies are currently making significant change to one or more of their business processes. Many of the companies that I talked to explained that business process re-engineering was not just a project, but was a way of life within their company. The good news is that in most cases IT was viewed as a key enabler of the changes that the company was trying to make.

7. Rise of ITIL

I have to admit that I had never heard of ITIL (IT Infrastructure Library) until roughly two years ago. As I mentioned in a previous IT Impact Brief, the goal of ITIL is to provide detailed, vendor-neutral process definitions with the intention that these process definitions can be adapted by any IT organization to enable it to deliver effective and efficient IT services. I personally find ITIL interesting because I believe that the lack of effective processes is the largest single impediment to successful network management.

We surveyed the NetScout community to get a better understanding of your use of ITIL. Based on that survey, over half of the NetScout community have either already implemented ITIL or are currently in the process of implementing ITIL.

A fundamental component of an ITIL framework is a configuration management database (CMDB). A CMDB is a unified or fed-

⁴ 2005/2006 VoIP State of the Market Report, Steven Taylor, www.webtorials.com

erated repository of information related to all the components of an information system. The goal of a CMDB is to help an organization to understand the relationships between these components and track their configuration. The NetScout community buys into the need for a CMDB as 85% of the community has either already implemented a CMDB or intends to.

8. NetFlow and Application Awareness Gain Prominence

I talked to a lot of IT professionals this year about application delivery. One network architect that I talked to summed up the situation by saying that once a performance problem has surfaced, identifying the root cause of the problem bounces around within the IT organization and that "It's always assumed to be the network. Most of my job is defending the network."

Data from SNMP MIBs (Simple Network Management Protocol Management Information Bases) can help identify performance problems. However, SNMP is not enough. In most situations, more data is required to analyze the situation. NetFlow represents an option as a more advanced source of management data than SNMP MIBs. For example, whereas data from standard SNMP MIB monitoring can be used to quantify overall link utilization, NetFlow data can be used to identify which network users or applications are consuming the bandwidth.

An important consideration for IT organizations is whether or not they should also deploy vendor-specific, packet inspection-based dedicated instrumentation. The advantage of deploying dedicated, packet-based instrumentation is that it goes beyond SNMP and NetFlow to provide definitive data for troubleshooting application performance on the network. The disadvantage of this approach is that it increases the cost of the solution. A compromise is to rely on data from SNMP MIBs and NetFlow in small sites and to augment this with dedicated instrumentation in larger, more strategic sites.

9. Vendor Consolidation Continues

The IT industry in general continues to be impacted by mergers and acquisitions. In 2006 Cisco finalized its acquisition of Scientific-America, Alcatel acquired Lucent, and Ericsson announced its intention to acquire Redback. Mergers and acquisitions have also impacted the network management space. In late 2005, IBM announced its intention to acquire Micromuse for \$865 million and completed the acquisition in early 2006. The acquisition is expected to allow IBM to extend its self-managing autonomic technologies to the network.

⁵ HP buys Mercury, positions itself for SOA management, July 26, 2006, http://searchwebservices.techtarget.com/originalContent/0,289142,sid26_gci1204593,00.html

⁶ IT budgets, salaries going up in 2007, Carolyn Duffy Marsan, Network World, September 18, 2006

Later in 2006 HP announced that it would acquire Mercury Interactive Corp. for \$4.5 billion. As part of this acquisition, HP will use Mercury's Business Technology Optimization as its mission for the combined software company and will drop the OpenView name. One of the many reasons for that acquisition was to position HP as a major player in the area of SOA (Services Oriented Architecture) management⁵.

In June 2005 CA announced that it has completed its acquisition of Concord Communications. This followed not that long after Concord had acquired Aprisma. CA stated that the acquisition of Concord would allow CA to deliver management solutions across networks, systems, applications and databases and to extend its presence to service providers.

You can expect this trend to continue into 2007. Since mergers and acquisitions bring both joy and pain, I suggest that you review your network management vendor strategy to make sure you do not end up with coal in your holiday stocking.

10. Salaries and DMAT

At the end of 2006 there was news, some of which was encouraging while some was discouraging, about our jobs. The discouraging news is that headcount is projected to stay flat in most IT organizations. Given the increasing demands on IT, that means that we will all be working more hours in 2007 than we did in 2006.

The encouraging news is that IT salaries are going up⁶. While most IT workers are paid relatively well, we do lag some other industries. For example, my beloved Boston Red Sox recently decided to bid on the services of a 26-year-old pitcher named Daisuke Matsuzaka, or DMAT. DMAT, who currently plays in Japan, has never thrown a pitch in a major league baseball game. In spite of that limitation, the Red Sox paid fifty-one million dollars just for the rights to negotiate with this pitcher. To put that in perspective, if an IT professional earns \$51,000 per year, he/she would have to work for a thousand years to earn what that Red Sox spent just to negotiate with this player.

I think that the learning here is that if you are planning on sending your child to computer camp next summer, that is probably a good idea. However, you might want to choose a camp that also has a sports program.

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