

IMTECH TELECOM NORDICS

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Market News for the Service Provider Community

June 2008

RESEARCH PROVES THAT JUNIPER NETWORKS OS (JUNOS) IMPROVES NETWORK OPERATIONAL COSTS

A recent report from Seattle-based Lake Partners Strategy Consultants looked at the role that network operating systems play in network operations. It found that while all network operating systems had some features and functionality that made them unique, Juniper's JUNOS software scored consistently highly in terms of saving time and creating operational efficiency.



FLEXIBILITY

Flexibility is the ability to add infrastructure and new services easily without loss of network stability or reliability. Just as increased congestion necessitates network reliability, it also makes flexibility critical to network success. As the use of high-demand services continues to grow, enterprises and service providers alike will need to expand the capabilities of their networks to absorb increased traffic and eliminate bandwidth congestion. Customers cite several means by which operating systems allow for flexibility: interoperability, modularity, separation of the control and forwarding planes, multiple supported IP protocols, and a consistent operating system.

Compared to other vendor offerings, Juniper takes an average of 12% less time to deploy at the core and an average of 40% less at the edge. Furthermore, Juniper customers report that JUNOS software reduces the time it takes to add routers or services to the network by an average of 29% and 28% respectively.

OPERATIONAL EFFICIENCY

Creating operational efficiency means that network operations teams spend less time on frequent system maintenance, such as monitoring and upgrading, and

more time on critical network tasks.

Lake Partners' research shows that for maintenance tasks, different operating systems had varied impact on network efficiency. In particular, customers perceive that JUNOS software creates significant operational efficiencies. On average, Juniper customers report that JUNOS software reduces time spent monitoring by an average of 24%. Upgrading with JUNOS software is also quicker than with other operating systems. Specifically, JUNOS software saves customers an average of 22% of time when upgrading at the core and 23% when upgrading at the edge.

Imtech Telecom Nordics boasts Juniper Elite Partner status and Juniper Global Support Manager status and focuses on customers within the Telecommunication Marketplace. With over 6 years experience in working with Juniper Networks, Imtech have gained the breadth and depth of knowledge to be able to provide pre-sales, design and consulting skills that our customers demand.

In order to ensure our Elite status Imtech Telecom Nordics continues to invest heavily in the skills of our staff. This ensures that we have the appropriate and adequate level of accredited engineers required to provide our customers with an unequalled level of design and consultancy expertise. Our team includes 3 x JNCIE, 3 x JNCIP and 9 x JNCIS accredited engineers in our pre-sales, consulting and support personnel.

If you are interested in the further benefits of JUNOS. Contact Imtech now!

The report can be read in full at: www.juniper.net/lakepartners



IMTECH TELECOM OPEN NORWEGIAN OFFICE

Imtech Telecom Adds Trust to the Net - now from Oslo!

Norwegian operators and service providers now have the opportunity to work with THE leader in carrier class network design and deployment from our new Oslo office.

Imtech Telecom provide services to customers who trust their networks as a core part of their business. Clients include operators, service providers, ISP, utility based companies and research & educational institutes. Also to complement UK based Imtech Telecom Global's footprint another new office just recently opened in Long Beach California.

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RELIABILITY

Reliability is seen as the ability to maintain high uptime. Customers identified five features of their operating system that contributed the most to high reliability: modular architecture, independent control and forwarding planes, redundancy, commit check functions, and advanced troubleshooting tools. Network reliability is becoming even more important as enterprise businesses and service providers carry multiple high-demand services, such as voice, streaming video, and business VPN services.

Lake Partners measured reliability based on three factors: time spent troubleshooting, frequency of unplanned events, and duration of unplanned events. Compared to other vendor solutions, Juniper customers reported that JUNOS software reduced the frequency of unplanned events by an average of 24% and made unplanned events an average of 30% shorter.

ICADEMY

IMTECH'S TRAINING TAKES OFF...
READ ON INSIDE FOR DETAILS

Imtech

OPERATORS LOOK TO NEW MOBILE BACKHAUL

Mobile backhaul used to be simple for mobile operators; they bought T1/E1 leased lines to backhaul voice traffic from cell sites and when they needed more capacity they bought new lines. The mass adoption of mobile data by consumers and businesses, however, has shattered that comfortable equilibrium and mobile operators have been forced to look to new technologies to support their rapidly growing backhaul needs.

A recent report from analysts ABI Research warns that mobile operators need to urgently upgrade their backhaul networks if they want to deliver anywhere near the promised bandwidth offered by high-speed packet access (HSPA). "Backhaul is a major contributor to network performance and cost, and operators should design their networks to meet peak traffic demand – not just average usage levels," says ABI Research senior analyst Nadine Manjaro.

ABI Research says that as T1/E1s reach near capacity, network performance degrades by over 40%. Rapidly rising mobile data traffic therefore has an immediate impact on network performance

and this is exacerbated by long provisioning times for leased lines.

BEATING RISING COSTS

Operators aren't just suffering from performance issues - backhaul is also an increasingly costly problem. According to ABI Research, T1/E1 and microwave backhaul was the largest contributor to operator capital and operational expenditure (CAPEX/OPEX) in 2007. Spending on backhaul is also rising inexorably with global CAPEX spending expected to increase from \$14 billion in 2007 to \$23 billion in 2012. OPEX will also rise from \$1 billion to \$6 billion during the same period.

To keep a lid on these rising costs, it is essential that operators look to backhaul solutions that meet their performance requirements and minimise CAPEX and OPEX. Many industry analysts recommend that operators focus on using Ethernet-based solutions for backhaul, including Ethernet over fibre and Ethernet over copper. Some operators are already starting to use hybrid infrastructures, which use Ethernet or DSL for data backhaul while keeping voice on the TDM infrastructure using T1/E1.

"In 2012, there will be a more



distributed mix of backhaul technologies across the various options," says ABI Research's Manjaro. "Microwave is expected to be the primary backhaul solution in all the regions studied, except Latin America and North America. Ethernet over fibre will be a very popular choice for upgrades between now and 2012, primarily due to its lower cost per megabit and high data rate, compared with other backhaul options."

ENCOURAGING STANDARDS

Ethernet has been boosted by work carried out by the Metro Ethernet Forum (MEF) to improve quality. "Operators were previously reluctant to hand off their radio traffic to anything other than a dedicated T1/E1 link, where they had confidence in the quality and availability of the circuit," says Glen Hunt, principal analyst in carrier infrastructure at Current Analysis. "The MEF's efforts have now built credibility for Ethernet

as a transport and service delivery infrastructure."

Another key development driving Ethernet-based mobile backhaul is the standardisation of pseudowire technology. This allows operators to carry multiple types of traffic over the same infrastructure. For backhaul this means that operators could carry TDM-based voice traffic and IP-based data traffic over the same Ethernet infrastructure.

Ultimately, the flexibility of Ethernet as a backhaul technology will hold mobile operators in good stead for the switch over to an all-IP infrastructure. Although this is likely to happen first in the core, Ethernet will allow operators to make the switch without any need for costly infrastructure changes.

For further information on infrastructure upgrades contact Imtech Telecom Nordics.

BEATING DDOS AND SECURITY ATTACKS



Distributed denial of service (DDoS) is one of the most destructive threats on the Internet. The 2007 Computer Crime and Security Survey published by the Computer Security Institute reported that 25 per cent of its 500 respondents had experienced a DDoS attack, with total losses amounting to \$2.9 million.

By flooding Internet-facing servers with fake page requests from

thousands of sources at the same time, DDoS attacks stop real requests getting through and can bring the entire infrastructure to its knees. The largest attacks can generate upwards of 20Gbps of fraudulent requests, which is enough to overwhelm nearly any network. DDoS can put web sites, applications and IP telephony services out of actions for weeks.

DDoS is not new but the last 24 months has seen attacks become more virulent, sophisticated and targeted at a wider range of companies. Until 2006, few companies outside of the media, gaming, finance and payment services industries would have been

targets, but now DDoS attacks are being used even to take out a competitor's web presence.

Attacks are typically launched by botnets, vast networks of compromised PCs. Access to these are sold on to the highest bidder, making it simple and cheap to launch DDoS attacks. More sophisticated attacks emulate real requests making it extremely difficult to root out the malicious traffic.

It's not just high-volume attacks that are causing havoc, however, other criminals are using low-volume attacks aimed at applications servers to bypass any DDoS protection companies may have.

Stopping DDoS attacks is unfortunately not straightforward.

Off-the-shelf appliances are available that can help block fake requests, but it's a running battle with criminals who come up with ever new approaches to disguise their traffic. Managed services are also available that take a company's entire traffic during an attack and scrub out the malicious traffic, while returning the valid requests. This has the advantage of freeing up the victim's network from the volume of traffic an attack generates.

Whatever the approach to solving DDoS attacks, there's no doubt that companies across all industries now need to consider how they will protect themselves. DDoS attacks are cheap to launch, can be very expensive to stop, and can cause untold damage to a company's business and reputation.

SCALABLE CARRIER ETHERNET

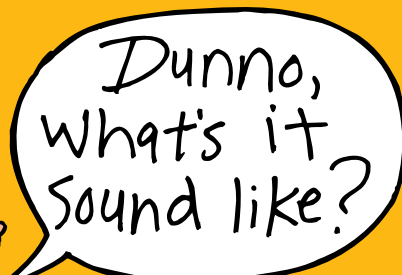
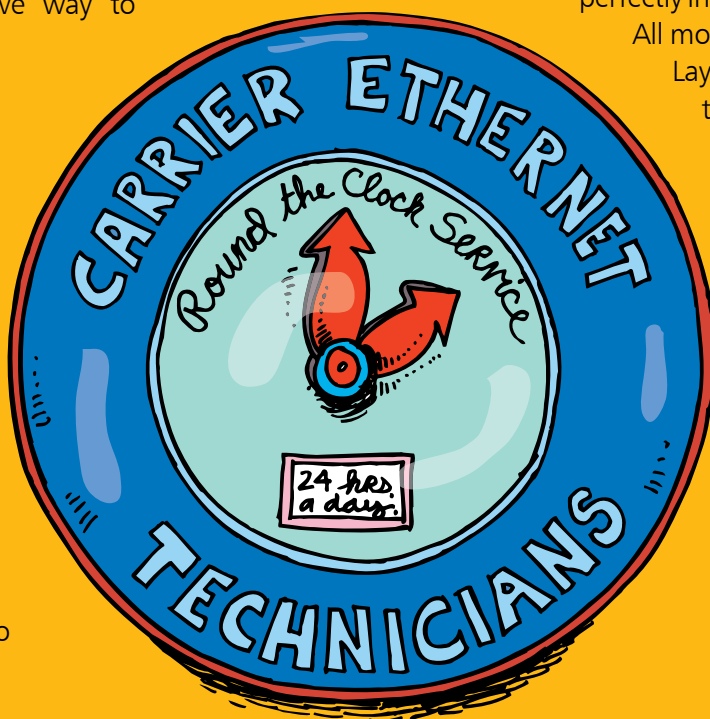
Ethernet is becoming the transport technology of choice for carriers who want to increase the capacity of their networks while minimizing costs. The need for additional capacity is being driven by high-bandwidth, next-generation applications such as IPTV and Video on Demand (VoD). In addition, new Ethernet-based services such as virtual private LAN service (VPLS) provide carriers with new revenue opportunities, but also require additional bandwidth. Ethernet has broad appeal since it is a familiar technology to service providers and provides a cost-effective way to scale the network.

The Juniper Networks MX-series Ethernet Services Routers (ESRs)-the MX960 and newly introduced MX480 and MX240-are purpose-built platforms designed to provide true carrier-grade Ethernet functionality. MX-series ESRs offer the scalability and performance needed to satisfy the most demanding network requirements. No

other vendor comes close to matching the number of supported GigE and 10 GigE ports and MAC addresses of the MX series. Because the MX-series ESRs support more than twice as many interfaces per chassis as competing products, customers can increase the energy efficiency of their networks and reduce power, space and cooling costs by as much as 60 percent.

MX-series ESRs provide high versatility and fit perfectly in multiple parts of the network.

All models support both Layer 2 and Layer 3 functionality-at the same time. In the past, carriers had to make a decision to deploy either a Layer 2 or Layer 3 device. That tradeoff is gone with the MX-series ESRs. Service providers can deploy an MX-series ESR as a Layer 2 device initially, then easily add Layer 3 functionality-on the same platform. This capability gives carriers a great deal of flexibility in designing and deploying their networks.



Contact Imtech Telecom a Juniper Elite partner for more information on the MX series.

VIRTUALISATION DOMINATES DATA CENTRE STRATEGY



Virtualisation has emerged as the key initiative in data centres, as companies look to reign in their energy consumption, improve business agility and cut operating costs through automation. Analysts the Butler Group believe that virtualisation will become the dominant technology in data centres over the next two years.

Infrastructure virtualisation uses specialised software to disconnect operating systems and applications from the hardware that they are running on. This means that physical servers and storage can be shared between multiple applications and operating systems allowing computer resources to be used more efficiently.

According to a Yankee Group survey of 300 large European enterprises, reducing infrastructure costs and improving server utilisation are the top drivers in virtualisation adoption. Flexibility, and faster server and application provisioning times are also important factors. The survey found that 40% of companies run their enterprise applications on a virtual infrastructure, with 50% planning to do so within the 2008.

The key benefits of virtualisation include: more flexibility in allocating computer resources; reduction of operational IT costs and better return on investment (ROI); improved IT service delivery; and lower energy consumption cost through better resource utilisation.

ALIGNING IT WITH THE BUSINESS

Virtualisation also supports the corporate strategy of aligning IT with the business. For virtualisation to succeed, it requires a change in the organisations' IT and business culture. To be able to share resources effectively across all applications, businesses need to move away from business unit autonomy with their own resource silos, to a position of pooled resources across the whole organisation.

"Understanding what infrastruc-

ture virtualisation can deliver, and how it is delivered, is the key to IT departments' successful evolution towards a more efficient model for deploying and consuming IT resources," explains Roy Illsley, Senior Research Analyst with Butler Group. Virtualisation has been so successful in transforming IT, says the Butler Group, that many businesses who started with a cost-saving server consolidation exercise, have made IT virtualisation a strategic part of the overall IT plan.

Virtualisation is not only delivering IT cost savings – it is also helping reduce the energy demands of data centres at a key time when electricity costs are spiralling, and supply is hard to come by for the largest facilities. The US Environmental Protection Agency has suggested that server consolidation at current rates could end up cutting US companies' carbon emissions by 15 million metric tonnes by 2011.

Calculating how much carbon emissions can be saved through virtualisation, however, is not entirely straightforward. It's not just the number of servers that need to be counted, because a single server in the consolidated infrastructure will consume more power than a single non consolidated server. Other factors such as data centre cooling also need to be taken into account.

HALMSTAD STADSNÄT DEVELOPS FOR THE FUTURE. "OUR SMOOTHEST UPGRADE EVER!"

Halmstad Stadsnät has upgraded its communication network to cope with the ever increasing need of bandwidth to supply new services.

The Uppgrade was implemented during February 2008, covered core equipment and concerned all customers connected to Halmstad's network. Halmstad Stadsnät chose Juniper Networks service node concepts. Imtech Telecom an elite Juniper partner was responsible for the deployment.

The project comprises of a number technologies that together govern all network traffic in and out bound and different service suppliers (Service Providers). With this solution, Halmstad's can now provide and administer network resources to 10GE customers both simply, fast and secure.

" this was the smoothest upgrade we have ever done! Of thousand's customers, there were only 3 that dialed in and they had not read our information on the homepage" says Eric Ericsson Halmstad's Stadsnät. We can actually recommend Juniper service Node concepts for more net owners that want a simple and cost-effective way to check and to administer customers, traffic and services.



" we are very proud to have been in involved in Halmstad's Stadsnät network upgrade. The project fits Imtech Telecom's distinguished profile. We combine several of our competence areas in order to build one helhetslösning in order to distribute triple-play functionality over a common infrastructure. The solution is cost effective and is a secure operating environment that Halmstad Stadsnät seeks", Mikael says Schütt, CEO for Imtech Telecom Sweden.

iCADEMY BRIDGES INDUSTRY SKILLS GAP

A lack of technical knowledge is creating a skills gap that could impact carriers' migrations to next generation networks (NGN). To tackle the problem, Imtech Telecom has launched the iCADEMY to expand the training services and facilities it can offer.

The iCADEMY offers training in areas such as IP, Security, MPLS, QoS and Carrier Ethernet. There are a wide variety of training options, including fully personalised courses held at customers' own premises. Standard in-house courses take place at either Imtech Telecom Nordic's headquarters - Sweden or UK, which houses training rooms and a fully equipped lab that has been specifically designed to



accommodate both in-house and remote training using webcasting and teleconferencing.

These facilities offer students first-hand experience of handling the equipment which Imtech Telecom feels is a necessary part of the learning process. The technical training lab holds in excess of \$5M of equipment.



COURSES COMING UP...

Core Routing

IOS to JUNOS
PBT vs MPLS

Broadband Remote Access

QoS Configuration & Concepts

Security

Virtual Firewall Implementation

Deep Packet Inspection

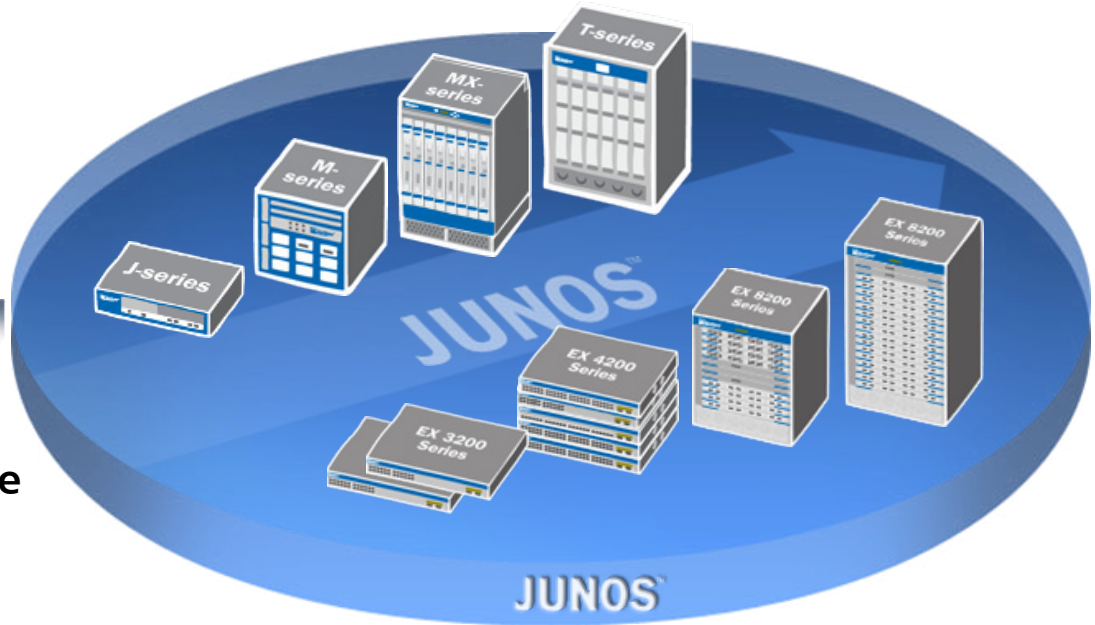
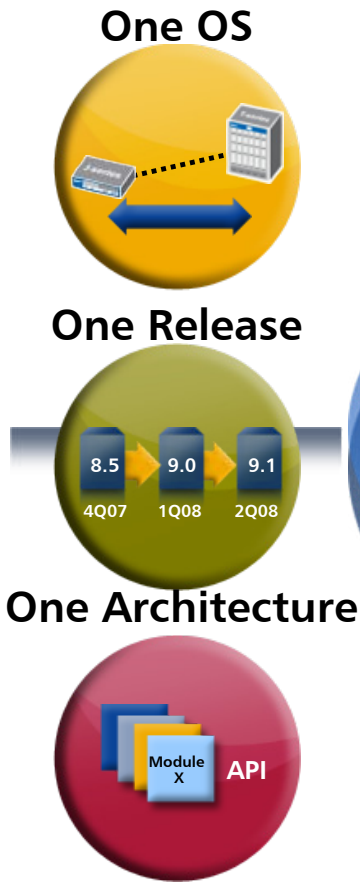
Implementing DPI in broadband networks overview

Carrier Ethernet

Introduction to Ethernet over SDH
Pseudo wire deployment
QoS over Ethernet

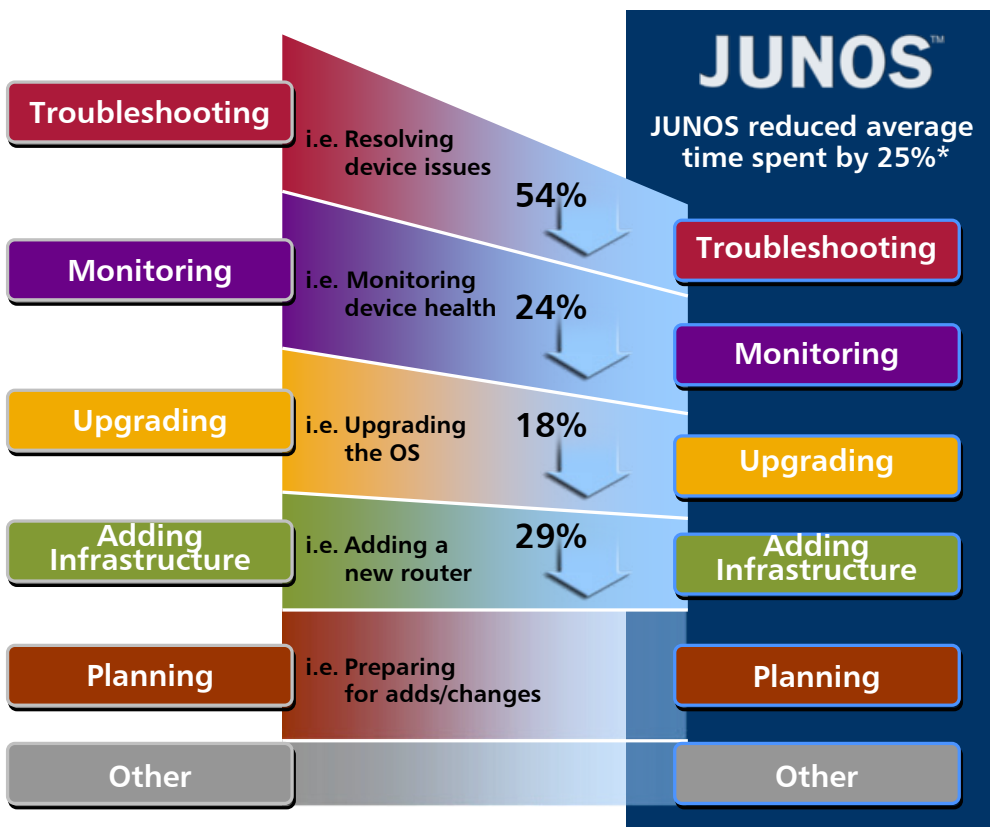
To find out more about Imtech Telecom's range of specialist courses, contact Imtech Telecom Nordics.

JUNOS Software Simplifies Operations



Juniper *your* Net.

JUNOS™ Software Generates Significant Operational Savings



Rich functionality is meaningless to a network manager if it isn't easy to implement and doesn't create operational efficiencies.

To manage all of this functionality to monitor it and configure it in a network is only operationally efficient if it's done with a single operating system.

Not only across all of the switches in the infrastructure, but also the routers as well. And this is done by all of these products running JUNOS.

Contact Imtech Telecom a Juniper Elite partner for more information on JUNOS Software.



*How Operating Systems Create Network Efficiency
Lake Partners 2007 survey report of 122 cross-industry ops leaders.
See full report at:
<http://www.juniper.net/lakepartners>

OPERATORS TURNING TO OUTSOURCING FOR NETWORK MANAGEMENT

As the network becomes ever more complex, an increasing number of service providers are looking to outsource network management, allowing them to concentrate on the burgeoning range of value-added services. Nowhere is this more evident than in mobile where operators commonly outsource radio access and core network management to vendors and integrators. One of the most high profile was 3 UK, which outsourced network management to Ericsson in 2005 in one of the biggest deals of its kind. This allowed 3 to focus on rapidly building its subscriber base and developing innovative content services.

It's not just mobile where operators are seeing the advantage of out-tasking. Broadband operators in mature markets and incumbents in development markets are also looking for help to deal with

the complexity of managing IP convergence against a backdrop of skills shortages.

Leading industry watchers Current Analysis noted that in December 2007 alone, there were 27 major managed services contracts issued by operators, up from 17 in the previous month. The reasons for the uptake in managed services, argues analyst John Marcus, is an increase in competition among operators, a desire to minimize risk when moving to a new environment (such as an NGN), and the new expertise required by multi-vendor networks.

Imtech Telecom Global is now a major force in managed services. It offers its 'Connect' service - outsourced management of core and edge network elements, as well as installation, maintenance and support for customer premises equipment while providing full visibility, access and strategic control. With guarantees that contracted equipment is always



operational, a service provider no longer needs to worry about resources, spare parts and 24x7 monitoring of its customers. Imtech Telecom Global provides service level agreement (SLA) management reporting through a customer portal, and reports can be white-labelled for customer SLAs. The portal can also be customised and accessed by the service provider's customers.

Imtech's managed services 'Connect' also include network optimization, which ensures the network is operating securely and at peak efficiency. This involves identifying potential bottlenecks

or hot-spots in the IP network, benchmarking the current health and utilisation of the router infrastructure, analysing BGP peering points and routing policies, and provide trending data that can be used for future capacity planning and trend analysis. These activities improve the network efficiency and reduce the ongoing operational costs.

More information - contact Imtech Telecom Nordics.



UNIFIED COMMUNICATIONS ON VERGE OF BREAKTHROUGH



Communications overload can be crippling. It's not just the volume of email, voice mails, instant messages and texts that is making working life difficult, the problem is exacerbated by the increasing number of communications channels and their lack of integration.

Consequently, many companies are

looking to the concept of unified communications (UC) as a way of reducing the complexity, cutting operating costs and introducing powerful new ways to collaborate. According to In-Stat and Wainhouse Research, a unified communications system includes elements of presence, instant messaging, IP telephony, audio conferencing, web conferencing or data collaboration, unified messaging, mobility, and/or video conferencing, all accessible through a single client interface or within an embedded application interface. The analysts have forecast a global market worth \$49 billion by 2012.

"The way in which individuals communicate and collaborate in the business setting has changed dramatically in the last few years, but we are just on the cusp of even more dramatic change. Employees will increasingly have intuitive

tools that allow them to control communications and presence, while expanding their access to critical information," says David Lemelin, an analyst with In-Stat.

During the course of a day, an employee could use a dozen different ways to communicate. Each will have its own interface, log on, passwords, directory and so on. There can be as many interfaces as channels. The ultimate goal of UC is to unite these in a single interface.

Instant messaging may be the environment that unites many of these channels. Gartner predicts that by the end of 2011, IM will be the de facto tool for voice, video, and text chat and by 2013, 95% of workers in multinationals will use IM as their primary interface for real-time communications. Instant messaging systems have become a key part of the collaboration infrastructure and are increasingly displacing voice calls and emails to pre-planned meetings and video conferences.

GREEN NEWS

THE OCEAN AS WATERCOOLER: FLOATING DATA CENTERS STAY COOL

A new Silicon Valley startup called International Data Security (IDS) has sent some big waves through the data storage industry by announcing its intent to set up a fleet of data-serving cargo ships. IDS has plans to make use of the seagoing nature of their data centers by utilising sea water for cooling the servers, which IDS says will eliminate the need for external cooling solutions and shave 30 percent from their total energy consumption. In addition to the standard data center backup generators, the ships will use their own built-in generators to provide additional power.

<http://idsstar.com/IDSSTAR/>

TECHNOLOGY PARTNER NEWS IN BRIEF



IS YOUR NETWORK SECURITY GROWING AS QUICKLY AS THE THREATS?



FRUKOSTSEMINARIE WITH ARBOR NETWORKS

Arbor Networks, a leading provider of secure service control solutions for global business networks, has completed its acquisition of Ellacoya Networks, a leading provider of carrier-class broadband service optimisation solutions.

PEERING EVALUATION AND VISUALIZATION

Negotiating, developing, and tendering peering arrangements can be challenging.

Optimizing interconnection deals without a peering evaluation and visualization tool such as Peakflow SP can be an onerous task.

Leveraging the Peakflow platform's network-wide perspective, Peakflow SP offers the ability to evaluate existing and potential peers, aggregating their traffic from across the network. Network operators can compare settlement-free and paid transit peers to optimize their transit and peering arrangements, and significantly reduce costs.

Peakflow SP also helps wholesale carriers and small providers in dealing with the increasing "peer pressure" to reduce transit costs and find the right peers.

24th April. To launch the new partnership in Sweden, Imtech Telecom held a very successful Arbor Networks breakfast seminar targetted at key customers. Arbor Networks - tools for peering analysis and DDOS attacks. Imtech Telecom is the leading Nordic system integrator and strategic partner for Arbor Networks.

Arbor Networks products optimize the performance and security of today's complex networks for operators and companies. Arbor Networks products are used in over 70% of the the world's Internet service providers. Arbor Networks has become defacto standard for flow based security and networks analysis. The main speaker was Danny McPherson, Business Development Manager at Arbor Networks. Danny also is member at the Internet Arcitecture Board. Danny McPherson's presentation consisted of DDOS and trends on the internet and incident handling and related areas.

CIENA ACQUIRES WWP

Ciena, the network specialist, has completed its acquisition of World Wide Packets, a leading provider of Carrier Ethernet solutions. "This acquisition enables us to capitalise on our early leadership in converged Ethernet solutions by accelerating the implementation and time-to-market of our Carrier Ethernet portfolio," says Gary Smith, Ciena president



and CEO. "World Wide Packets brings strong engineering expertise and business acumen in this technology arena, deepening Ciena's command of this nascent market and furthering our credibility in the space." World Wide Packets will add approximately 180 employees to Ciena, and will continue to operate from its Spokane Valley, Washington and San Jose, California locations.



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TECHNOLOGY PARTNERS



IMTECH TELECOM GLOBAL 'CONNECT' PROGRAMME 'ENABLING YOUR MANAGED SECURITY SERVICES'

ARE YOU READY...

- For recurring revenue streams?
- For higher margins?
- To be a strategic, valued security partner for your customers?

GET SET...

- Imtech Telecom's 'Connect' programme combines Juniper Networks award winning security technology with Imtech's best-in class managed security deployment.
- Accelerate the time from concept to customer deployment
- Everything you need from design and installation of the service to taking your first order!

GO!

- Contact Imtech Telecom for more information on the 'Connect' Programme. Tel. +46 8 735 37 00

