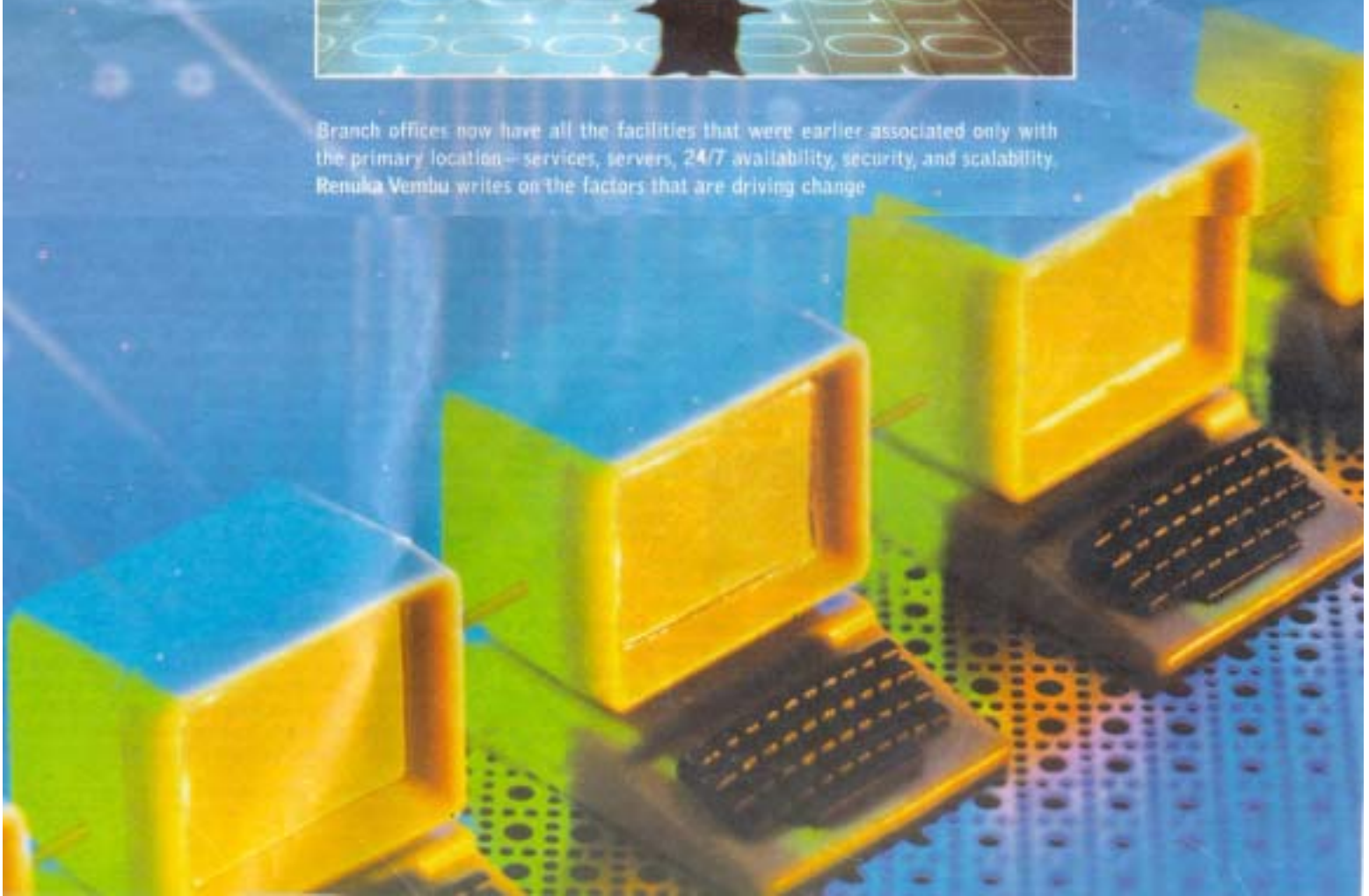


Transformation in branch office networks



Branch offices now have all the facilities that were earlier associated only with the primary location – services, servers, 24/7 availability, security, and scalability. Renuka Vembu writes on the factors that are driving change



The configuration of any branch office network is based on its transaction levels or volumes of data, the bandwidth needed to manage the operations, the cost viability in the long run and the ready availability

With globalization and the world getting closer, with mergers and acquisitions on the rise, with business expansion being the norm and companies spreading their wings worldwide, organizations have to adapt to newer means of running their businesses. Increasing business volumes, shrinking cost budgets, technological advances, space constraints, disparate resources, regulations, all have led to consolidation of infrastructure, applications and servers, centralization of data and information, integration of workflow, etc. Branch offices now have all the facilities that were earlier associated only with the head office—services, servers, 24/7 availability, security, and scalability. Information has to be available to the entire ecosystem of partners, suppliers, customers, and employees. Companies are moving applications and servers back to central data centers.

According to an IDC report, 60%-70% of the workforce works in remote offices, resulting in the mushrooming of branch offices. The definition of a typical branch office can be anything—a manufacturing unit, a clinic, a small corporate office or even a coffee shop. Ratnesh Sharma, Director, Product Management and Marketing, Citrix R&D India, gave some statistics that highlight the growing importance of and the imperative need to give due significance to branches. "There are 23 million branch offices globally, which is putting a strain on IT. 32% of IT budgets are now being allocated to branches, and 20% of servers are installed at branches."

Alamuri Sitaramaiah, General Manager, Sales, Fluke Networks, India, opined, "Companies are

integrating branch office workflow with that at the central office where in large data centers host enterprise applications like ERP, CRM, SCM, messaging, etc. With such workflow integration, uptime and response time of these centrally deployed applications are becoming critical."

Earlier branch offices got the second-fiddle treatment, both in terms of investment and infrastructure. Businesses adopted an ad hoc approach with regard to branch offices; persistent problems like network or application downtime, lack of a structured process to approach problems, transportation woes, dearth in trained and skilled staff in remote areas to manage infrastructure existed. Today, in the age of convergence, need for business continuity and disaster recovery, state-of-the-art facilities, technological feasibility, ease of communication, performance, ready accessibility of data, and on-the-spot decision-making have all become imperative and pragmatic.

Bhavin Turakhia, Founder and CEO, Directi, explained, "Traditionally, branch offices were connected to the head office over T1/T3 links or dedicated leased lines. With the growth of broadband and high-speed Internet connectivity, a dedicated line to connect branch offices is not necessary. Branch offices just require an Internet connection (broadband or high-speed leased lines depending on the data transfer and speed required to access services at main office). Using the Internet one can set up site-to-site VPN tunnels."

Vivek Singh, Regional Director, India and SAARC, Riverbed, said, "The traditional way of working is to have local servers for local services such as print, DNS/DHCP, IPAM firewall, etc., but people have realized that greater the number of remote offices, the higher the cost of a distributed set-up and the ever increasing challenge of managing it. These factors are driving enterprises to consider the consolidation of IT infrastructure seriously. Distributed servers for running remote services are giving way to platforms which will run virtualized edge services leading to cost savings and enhanced user performance."

Matthew Young, Vice President Sales, Asia Pacific, Blue Coat Systems Inc., explained, "The best way to support the performance of the network across branch offices is to have a proxy-based architecture. This enables one to cache content locally next to the user at the branch office. This alleviates half the traffic of the WAN, taking the load off the network and optimizing it in the

process. So when branch office workers need to access data they can often speed up access by having it cached locally. Also, one doesn't need to have 200 transmissions on LANs slowing down the traffic of SAP, Oracle or any other core business application."

The configuration

The configuration of any branch office network is based on its transaction levels or volumes of data, the bandwidth needed to manage the operations, the load it can handle, maintenance and the sustainability factor, the cost viability in the long run and the ready availability. Singh added, "Configuring a branch office network should be easy and if it is touchless, that is the icing on the cake with large deployments. Having a large number of branch offices within an enterprise leads to greater complexity with regard to deployment, configuration and uniform deployment of management policies. With a central management console, IT administrators have one console with which they can manage, configure, and update all of an enterprise's Steelhead appliances. With a view to cut costs, they should try and consolidate those services into specific appliances, or products that provide these services at significantly reduced costs."

Prasanna Nair, Head, Atos Origin India's, Infrastructure Management business unit, said, "For a typical branch office, assuming that reliable connectivity is available, the branch network will be an independent LAN connected to [the central data center] via a secured network. Organizational information will be stored centrally and made available through the intranet. The branch office can access the data through browser-based thin clients. Today a single networking box can handle voice, video and data requirements of any branch, thereby minimizing the administrative challenges. Further, government legislation on VoIP has helped to make branch communications more reliable and economical."

Since branches typically would not have IT engineers or senior systems professionals, equipment used here has to be simpler from a usage and maintenance perspective. A seamless interface between LAN and WAN, switches and routers and firewall for security are the minimal requisites that need to reside in branches. Turakhia said, companies have to ensure that the branch office and main office have fat pipes

(Internet connection) with reliable providers and standard SLAs based upon the criticality of business and



Bhavin Turakhia

FOUNDER AND CEO, DIRECTI

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➤ dependency on services at the head office.

Banking and financial services, manufacturing, government, telecom, and retail are the verticals, which have high adoption levels, said Sharma. Big companies are not the only ones adopting these measures to transform their branch office networks. Even SMBs are joining the cause it to save costs and make things more efficient. Manish Chowdhury, IT Manager, eInfochips, explained, "Depending on the spread and population, a branch office network can be two tier or three tier with a backbone, distribution and access layer. The server farm, WAN and Internet should be connected to a backbone with a high availability mechanism and higher-end Layer 3 manageable network switches. The desktops should be configured to connect to a Layer 2 manageable switch. Depending on the user population, it is a good idea to segment the network in to smaller groups to reduce broadcast and safeguard against virus attacks."

He was also of the view that while designing and configuring the network, precautions should be taken against network looping, flexibility to isolate and secure the network based on requirements, and one should consider the types of applications, such as data, voice and video which should be supported. Blue Coat puts a mini gateway at the branch, alleviating the need to have a firewall, and proxy appliance, ProxySG, together giving a more secure environment. It allows one to offload traffic directly to the Internet rather than back hauling it to over the WAN. They give the branches the capability to do the application traffic management at the branch-level.

Since branch offices have to survive on comparatively stringent budgets as compared to the head office, to control them centrally, the equipment installed at branches must be SNMP compliant. Standards based NMS deployed at the HQ can ensure the complete monitoring and management of branch networks, helping identify

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Advantages of consolidating branch office networks

- Optimization of resources
- Decrease in bandwidth consumption
- Application acceleration and performance enhancement
- Cost reductions
- Enhancing service levels
- Reduction in capital costs and operating expenditure
- Information integrity and data security
- Easy accessibility and flexibility



John Samuel

COUNTRY MANAGER, VERIZON BUSINESS INDIA

Business communication is now an integral element of business operation, and as the world moves to IP, communication infrastructure will become even more closely embedded in the heart of the enterprise



Matthew Young

VICE PRESIDENT SALES, ASIA PACIFIC, BLUE COAT SYSTEMS INC.

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network/link failure. Any abnormal load in the network must be proactively intimated to the IT administrator at the HQ and corrective action initiated, felt Subashini Prabhakar, Chief Technology Manager, Dax Networks.

Resource management@Branches

An organization needs to have resources at its disposal to embark on such an initiative. The primary ones relate to cost, availability, scalability, skill-sets and competence level of the technical staff, user experience, space and scope for upgradation, besides other value-added services.

Some of them as pointed by Prabhakar are:

- **Security:** The distributed nature of the branch office-based applications does increase the potential security risks that they can face. The risk can be mitigated in most cases, but it is an important consideration because the cost of mitigating the risks will vary, depending on the applications solutions selected.
- **Redevelopment time:** If the application has to be rewritten to support the branch office sites, the time that it will take to specify, develop, and test a new solution can be significant. Various development architectures, languages, and tools take different times to work with. These can be significant and should not be underestimated.
- **Branch office user experience:** One should thoroughly examine and test the branch office site experience for users of the system. A project can fail simply because the developer's expectations of the infrastructure are not

achievable at the branch office sites.

- **Network bandwidth requirements:** This figure must represent an achievable bandwidth for all branch offices in the design. It is important to communicate the bandwidth that will be available for the application and not the total bandwidth of the WAN links; often these figures are very different.
- **Additional benefits:** The final consideration is to try to identify any additional benefits that the solution might bring. For example, the update to the application may present other business opportunities that were not possible with older applications, such as integration with Web services.

Sitaramaiah added, "Organizations need a strong IT team that can specify and manage integration of various elements of the infrastructure—LAN, WAN, applications, servers, VLANs, etc." Moreover, such IT teams should be equipped with the right tools to ensure they are able to test the integration, baseline the performance of the infrastructure and weed out teething problems that limit performance as they begin to deliver applications to the branches.

Challenges to combat

The challenges to avoid and weed out will be many. Not to compromise on security aspects will hold the key.

Companies need to ensure that content is available locally, no matter what. As Turakhia pointed out, "It is important to make sure that any disaster on the main office does not impact the functionality of its branches. Maintain local ➤

copies using suitable replication techniques. This also serves as a good solution for disaster recovery and keeps a branch running independent of the main office."

People are one of the strongest forces to resist and to adapt to changes. Apart from those, allocating a budget, planning the roadmap, managing within the given resources, training the technical workforce, selecting the vendor who caters best to the company requirements, are some of the key areas that need special attention if a company is to maximize the results. Managing multiple networks and a host of applications requires expertise and diligence.

John Samuel, Country Manager, Verizon Business India, listed the following challenges that must be addressed while designing any solution:

- Changing market dynamics require that companies are able to adapt their processes and organization across the global landscape, with new technologies and services acting not only as a facilitator to support this change, but in many cases also as a driver for change.
- Business communication is now an integral element of business operation, and as the world moves to IP, communication infrastructure will become even more closely embedded in the heart of the enterprise.
- Security is another key challenge for the extended enterprise. Data is no longer a contained entity—it flows in and out of the enterprise, and competitive advantage derives from how well organizations are able to manage the speed of that flow.

Benefits to reap

The advantages include minimal risk, easy accessibility, high performance levels, flexibility, lower capital and operational expenditure. Samuel said, "A robust, reliable and available network makes the extended enterprise a reality; the continued move to simplifying networks over an IP platform has the potential to transform business operations,



Manish Chowdhury

IT MANAGER, eINFOCHIPS

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enabling employee productivity to be dramatically improved by use of the latest, IP-enabled, business enhancing applications."

Optimization of resources, decrease in bandwidth consumption, application acceleration and performance enhancement, are some of the visible benefits that can be leveraged from transforming the branch office networks.

Nair opined:

- A branch office can provide help to customers in their vicinity and continue to maintain the same service levels.
- On-demand access to information from any location leads to quick decision-making. It is a highly desirable requirement for companies in business like supply chain, equity trading, sales and industrial marketing.
- Financial savings occur due to reductions of administrative cost by reducing IT support requirements in the branches; consolidation of hardware leading to better utilization; serving inter-office voice needs on VOIP network, thereby reducing communication cost; reduced cost of backups and information integrity and data security.

Trends in this space

Nair listed the trends that are catching on in this space:

- Companies will try to consolidate the infrastructure and branches will work like dumb terminals. This is especially true keeping in mind reduction in connectivity cost and improvement in reliability.
- As software licensing costs for organizations are increasing,



Vivek Singh

REGIONAL DIRECTOR, INDIA AND SAARC, RIVERBED

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there will be greater shift for concepts like 'Hot seats' where access to specific functionality (software) will be available based on an individual's profile. This will not only optimize the usage of software licenses, but will also make the persons location independent.

- Due to the VoIP network, there will be consolidation of STD/ISD load, and companies will be better equipped to bargain with service providers.

Dax has its remote access device servers, which used to do device management and trouble shooting. eInfochips has designed their network to be structured with Giga backbone and Layer 3 segmentation. It has wireless, video conference, internal messenger, Intranets, VPN and high availability integrated in their network environment.

It is further planning for LAN security, policy enforcement and data leak prevention to mitigate risk of data thefts and internal threats. Citrix has its Citrix Branch Repeater, which streamlines applications for optimal performance.

Prabhakar concluded, "In a nutshell, branch office network transformation is required to, reduce the operating cost—centralized/ remote management, raise the operating efficiency by improvising productivity of maintenance staff, improve mean Time to Recovery and shorten the downtime by trouble shooting the devices from the central site and maintaining a high availability of the branch office network, and handle the emergency and abnormal failure." ■

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Reasons that have led to transformation

- Increasing business volumes
- Shrinking cost budgets
- Technological advancements
- Space constraints
- Disparate resources
- Compliance regulations
- Age of convergence
- Need for business continuity and disaster recovery
- Ready accessibility of data