3Com's Strategy Overview
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High Performance Scalable Networking

Today's Network Challenge
The primary challenge facing network managers today is planning and building flexible, high-performance networks. To meet this challenge, 3Com has developed a comprehensive architectural strategy and network design blueprint called **High Performance Scalable Networking**, or HPSN. The core elements of HPSN are scaling network performance, extending the network's reach, and network management. The result is providing more network services with fewer security risks and lower costs, enabling 3Com to build networks that go the distance.

MIS and IT professionals are continually being pressed to offer more services, while at the same time minimizing network risks and containing costs. Yet these three essential network requirements are often at odds with each other. You can balance all of these needs more effectively if you plan and build your network using 3Com's High Performance Scalable Networking architecture.

3Com's HPSN is both a planning tool for your evolving network and a guide to 3Com's strategic product plans. High Performance Scalable Networking not only takes into account your current network needs, but focuses as well on the future needs of your evolving network. This creates a flexible plan that offers maximum network scalability and functionality.

It's well known that 3Com is an industry leader in adapters – we sell over a million units per month. 3Com is also a leader in hubs, routers, LAN and cell switches, and remote access products. 3Com has the broadest product range of any networking vendor, and because of 3Com's product diversity we are able to provide a truly integrated systems approach.

The success of High Performance Scalable Networking as a blueprint for network evolution and for development of 3Com's world-class products is based on six key principles. These principles detail the underlying philosophy that differentiates 3Com's strategy from other networking companies:

1. Investment protection with incremental evolution
The HPSN architecture protects you from having to upgrade massive amounts of equipment and is designed to allow you to add features and functions where and when you need them. The HPSN architecture and all of 3Com's products are designed with this principle in mind.

2. Standards-based, open, multivendor architecture
Our systems and products are built to be used in any network, working with all other vendors' products. This is your best guarantee of a future-proofed network.

3. Centralize complexity and distribute simplicity
The core of the HPSN design philosophy is centralizing complexity in to take advantage of large-scale processing, support facilities, and network expertise, while distributing simpler products and technologies that are low cost and the easiest to use and maintain. Following this principle increases network performance, lowers costs and reduces reliability risk.

4. Systems focus with point product excellence
3Com is unique in delivering a complete set of solutions with best-in-class switching, routing, hub, adapter, and remote access products.

5. Technology and platform neutral
Ownership of all key networking technologies allows 3Com to solve customer problems by applying the best-suited technologies. Other vendors, who often have a narrow focus and product line, may force you to adopt a particular technology or form factor to meet their needs, not yours.

6. Network Management beyond device management
At 3Com, our focus is on the management of complete networking systems, not just the pieces.

These six design principles of HPSN result in a network architecture that uniquely provides for both scaling the performance and extending the reach of your network.

Scaling Performance
The first of the three core elements of HPSN – scaling performance – refers primarily to the improvement of infrastructure performance for workgroups and the campus backbone. Most vendors talk about performance primarily in terms of bandwidth, but performance also means delivering information on demand without a noticeable delay. HPSN is a comprehensive blueprint for scaling performance in three stages as your network grows.

In stage one, we deploy a collapsed backbone with server farms. This uses the principle of centralizing complexity at the data center and distributing simplicity out on the floor. Incremental improvements in bandwidth can be achieved through LAN segmentation.

Stage two delivers increased desktop performance by deploying switching in the wiring closet on the floor and delivering higher speed links – such as fast ethernet or FDDI – directly to power users and file servers. To support these high-performance workgroups, we use high-speed technologies like FDDI, fast ethernet, or ATM for the downlinks to the data center.

In stage three we take full advantage of the speed and flexibility of ATM to support multimedia with virtual LANs and WANs throughout the organization. ATM offers very high speeds, scalable to 622 MB per second and beyond, low latency, support for voice, video and data, and seamless integration of virtual LANs and WANs.

Throughout this three-stage evolution of the network, we are consistent with our design principles: incremental and open systems, centralized complexity and distributed simplicity, a systems focus, technology neutrality, and powerful network management. Following these principles, High Performance Scalable Networking delivers measurable business benefits by offering more performance and services, while minimizing risk and reducing network cost.

Relentless Innovation
3Com is able to meet these challenges of building a growing network by being a relentless innovator in the technology of scaling network performance. Examples of this innovation include:

- Integrated redundant power supplies and hot-swappable modules are standard in 3Com's backbone and hub products.

- Parallel Tasking, custom silicon, and ASICs make 3Com adapters reliable high-performance products.

- More than 150 separate segments of switched ethernet within a single switching chassis give 3Com's backbone switches industry-leading performance.

- Advanced ASICs in the new LinkSwitch 1000 reduce costs to under $200 per port for low-cost workgroup switching.

- 3Com invented the true stackable hub and has expanded the concept to repeaters, routers, switches, SDLC converters, and other devices.

- For multimedia, we've recently developed PACE – priority access control enabled – which carries voice and video over existing ethernet networks.

Extending The Reach of Your Network
The second of the three main elements of High Performance Scalable Networking is extending the reach of your network. Extending the reach means more than just knowing how to interconnect remote sites and personal offices into the WAN backbone. It means taking into account the fact that remote sites need the same capabilities as the local network, while being simpler to install and manage. It also means integrating third parties – such as customers and

trading partners – into the network in a thoughtful manner. HPSN is meeting these challenges today and developing next-generation solutions for the future.

Just as in scaling performance, HPSN offers a detailed three-stage blueprint for extending the reach of your network as it grows. As always, 3Com offers world-class products to complement its architecture.

Stage one is deploying a classic router type mesh backbone. 3Com supports all the leading WAN technologies and protocols and provides high-end routers capable of interconnecting campuses and buildings.

In stage two, as the network proliferates to include hundreds of locations, remote network elements need to be simple and inexpensive. The complex part of WAN routing is kept at headquarters and lower-cost robust boundary routers are installed in remote offices for protocol support.

In stage three, mobile and home users want all the capabilities of headquarters' LAN but have limited access to HQ's technical support. HPSN provides products that are 100% robust with minimal software complexity, so they are very easy to install and use, such as 3Com's best-selling modem/LAN combo card and 3Com's ISDN products.

Throughout each stage of extending the reach, 3Com supports all major technologies, including ATM, SMDS, Frame Relay, leased lines, ISDN, analog, cellular, and x.25 wide area services.

This blueprint for extending the reach of your network is again consistent with our driving principles: it is incremental and open, centralizes complexity and distributes simplicity, has a systems focus, is technology neutral, and provides for ease of network management. By following these design principles, 3Com helps you offer more services with less risk and lower costs, while extending the reach of your network.

Continually Innovating
3Com is able to help you successfully extend the reach of your network because we are continually innovating powerful new technologies and solutions:

- Boundary routing is hands down the least expensive, easiest, fastest, and most manageable way to connect remote offices to headquarters. 3Com's comprehensive support innovations include bandwidth on demand, dial on demand, disaster recovery support, and call management.

- We invented the stackable hub concept and innovated the SuperStack.

- Our PC combo card is perfectly suited for the personal user with its high-speed modem, parallel tasking technology, easy installation, and driver-integrated management.

- 3Com was the first to offer remote boxes with dual flash memory, so users can download updates faster and retain redundancy by keeping copies of legacy software. 3Com was also the first to deliver integrated compression in a box.

- ISDN extensions are offered to regional, branch, and personal offices, as well as information and internet service providers and telco carrier points of presence. Our ISDN technology supports inexpensive high-speed dial-up from remote users to headquarters and locations beyond the enterprise.

Extending Beyond the Enterprise

Just as 3Com is using intelligent desktops to redefine scaling performance, we are changing the paradigm for extending the reach of networks. With the need for dynamically changing virtual enterprises, we are introducing enterprise-wide virtual networking for local *and* wide areas.

3Com is providing powerful networking systems for carriers to use in their wide area infrastructures, for small businesses to connect to transactional networking systems for electronic commerce, and for consumers to enjoy infotainment services. In each instance, we are committed to finding cost-effective solutions that centralize complexity, whether at corporate headquarters for large enterprises, or at the carrier's point of presence for smaller businesses.

Network Management

The third and last major element of High Performance Scalable Networking is Network Management, which – following 3Com's HPSN principles – is integrated into *all* aspects of the network. As a result, 3Com's **Transcend Network Management** offers you bottom-line business benefits through superior network management features.

3Com's technology leadership includes essential network management innovations:

- Smart Agents allow devices to report gauges rather than static data. This reduces excessive polling, lowers network traffic, simplifies the management task, and provides useful information more rapidly.

- Network redundancy includes power supplies, hot swappable modules, and redundant links, even in hubs.

- A common application look and feel facilitates ease of use and significantly reduces training costs. With RMON integration, data can be collected directly in the hub, allowing the network manager to be proactive rather than reactive.

- LAN Security Architecture was invented by 3Com. This technology, included free in 3Com hubs, scrambles data for unintended users, automatically senses unauthorized devices, and disconnects offenders.

- Virtual LAN management allows the network manager to track data for an entire department or campus as a single entity, rather than having to track each individual device separately.

Finally, unlike some other vendors, **3Com supports all major platforms**, including OpenView, NetView, NMS, and Windows.

Meeting Today's Network Challenge

In summary, the development of 3Com's HPSN strategy – as well as each 3Com product – is driven by these six principles:

- Investment protection with incremental evolution
- Standards-based, open, multivendor architecture
- Centralized complexity and distributed simplicity
- Systems focus with point product excellence
- Technology and platform neutral
- Network management beyond device management

So if you want to deliver more services to your users, lower security risks, and reduce the cost of growing your network, you'll want 3Com's High Performance Scalable Networking – lower cost, less risk, and more services.

3Com builds networks that go the distance.

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