agile network architecture

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AGILE NETWORK ARCHITECTURE:

Building Flexible Solutions that Deliver Business Results

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The Old View No Longer Reflects Reality

Historically, IT departments and the organizations they serve have viewed networks as something that existed inside the enterprise. Networks were created to run on "our" premises, to serve "our" employees, and connect "our" systems via "our" links.

With the advent of the Internet, this changed. Suddenly, a new sales channel opened up. Companies had a faster, more efficient way to connect with customers. They could directly link to suppliers and partners, and develop innovative marketing techniques. Beyond that, companies are facing a whole range of new business challenges. Supply chains are growing wider, mergers and acquisitions are now common business practice and companies are relying more and more on the extensive use of consultants, partners and outsourcing.

The way that virtually every organization has dealt with these new challenges and opportunities was on an exception basis. Instead of rethinking the network from the ground up, they started punching holes in the traditional 'inside/outside' model. Organizations started breaking through their firewalls on a case-by-case basis, compromising their security, patching with containment areas, and trying to connect it all with a labyrinth of customized links.

This approach is difficult, expensive and time-consuming. It drains an enormous amount of IT staff resources, causes backlogs of requests, and strains relationships with internal clients and management. Beyond that, it delivers results that fall far short of meeting business requirements and creating durable solutions.

Networks based on the old paradigm are inflexible, cumbersome and difficult to manage. They are unable to keep up with fast-changing business requirements and, even worse, become an inhibitor to creating change and delivering business results.
Why Network Architectures need to be Agile

In order to effectively meet today’s business challenges and opportunities, CIOs and their IT departments need to provide networks that have the capacity and flexibility to do three fundamental things:

1. Create rapid infrastructure access for partners, customers, employees and suppliers without compromising the security of corporate intellectual property.
2. Integrate or split the network to support organizational changes such as mergers, acquisitions and divestitures.
3. Enable the rapid implementation of new business models including transactional websites, supply chain management, outsourced business functions, B2B collaboration, and customer relationship management via the Internet.

These results cannot be achieved with the technology-based, patch-and-fix approaches of the past. A new strategy is required which reflects today’s realities and produces the desired business results. That new approach already has been invented and successfully implemented on a large scale. Agile Network Architecture (ANA) provides CIOs and IT departments a new way to design and build networks, and enables the seamless migration of legacy systems to the new architecture.

Agile Network Architecture (ANA):
- Reduces costs.
- Requires no planned disruption of service.
- Delivers measurable business results every step of the way.
- Enables more complex changes to be completed in less time.
- Cuts the amount of time needed to add or remove large numbers of users from a period of months to a matter of hours.
- Compartmentalizes the network to deliver levels of access and security appropriate to each application and user environment.

Taking a New Approach

Implementation of an Agile Network Architecture (ANA) does not entail changes in technology or business processes, but it does necessitate a fundamental shift in perspective. This is because the inside-outside view of networks no longer applies. It does not reflect reality. Network boundaries are blurring and, in order to cope with this fact, the starting assumptions underlying network design and creation must change.

The new paradigm introduced by the Agile Network Architecture solution encompasses a number of fundamental shifts:
- From inside/outside . . . a simple, integrated, modular and secure internal network backbone that integrates with the Internet.
- From different networks or network components to serve different geographical locations to . . . logical network areas that serve different business functions, no matter where people are located, inside or outside the organization.
- From ad hoc quick fixes that punch holes, patch breaks and make the network more complex and unmanageable to . . . modular components that are integrated, secure, centrally managed and easily adapted to meet various business needs.
- From technology-based patches to . . . business-based solutions that provide freedom and flexibility to meet fast-changing needs over the long term.
Underlying Design Principles

Agile Network Architecture is built on three fundamental design principles:

1. **Simplicity** – The traditional network model is a legacy of the pre-Internet world, and patching this old approach increases complexity and risk at an exponential rate. By contrast, the ANA design assumes that most, if not all, components of the organization’s network will want or need to connect to others via the Internet at some point, in some way, as part of the normal course of doing business.

2. **Modularity** – Systems are grouped based on like business needs. Some systems are operated by others and they can be constructed to connect or disconnect in near real-time. Some are always outside the enterprise; and any group, configuration or component can be modified without changing the others.

3. **Integration** – Each compartment within ANA serves different business needs using a pre-defined framework that allows additional systems to be added quickly and easily. In addition, all compartments within the system are managed in an integrated, consistent way across the entire network.

Phased Implementation Yields Business Benefits at Each Step

Agile Network Architecture can be implemented by outsourcing to a third party with proven skills and experience in this approach, or through a consulting engagement. Whichever path is chosen, there typically are five steps in the process.

The first step is strategy and planning. Looking at an organization’s business needs, ANA consultants work with organization staff to determine the most relevant business issues that need to be addressed in order to achieve a short-term, measurable return on investment.

After business needs and potential benefits have been assessed, the overall framework of the network is designed, setting criteria for each component, grouping like business functions and processes together, and setting the parameters for ISP connections, leased lines, wireless initiatives, wide-area networks and levels of security to meet those needs.

Once criteria have been set for each component, the third phase – technical implementation – can begin. One component or “bubble type” is created and partitioned from the rest of the network. Typically, this bubble includes all legacy systems, which can be isolated and continue to operate for as long as needed. The next bubble to be created and partitioned may be e-services, customer relationship management, or whatever business function’s migration to the new network can yield the greatest benefits. Each application to be included in a particular bubble type is evaluated on various criteria such as security and user access. This process of creating components proceeds, one at a time, until all business processes and functions have been assigned to the appropriate bubble type.
The fourth and fifth phases are organizational implementation and transfer of expertise, in which the means to sustain and evolve this new approach are embedded in the organization itself. Each bubble type requires a set of policies and processes for the hosts and applications residing within the bubble. Policies are established that define the minimum security requirements for each bubble type, the trust relationships between bubbles, and the parameters for new bubble types. The organization’s existing policies and processes are reviewed and modified, as needed, in order to meet the new requirements. Organization personnel receive training that enables them to maintain and evolve the Agile Network Architecture so it can continue to meet the changing needs of the enterprise over the long term.

Using this phased approach, ANA builds a simple, modular, integrated network architecture that has the speed, flexibility, durability and business focus needed to meet the business challenges of today and tomorrow.

**Tangible Business Benefits**

Agile Network Architecture’s underlying design principles, implemented through the phased process described above, yield tangible business benefits:

1. **Greater Agility** – Leveraging pre-defined design principles and methodologies enables organizations to more effectively anticipate change, respond more quickly, and adapt their value propositions and value delivery systems as needed. ANA produces a network that can effectively support mergers, acquisitions and divestitures, or the integration of partners & customers securely into the network on both a large and small scale, whether frequent or infrequent. This approach enables employees and partners to quickly and securely access the right internal systems at the right time. It shortens the amount of time for business to realize the benefits of new partnerships and in the case of merger & acquisition it minimizes business and legal risks with a clean, on-schedule divestitures.

2. **Reduced Costs** – The speed with which an organization can make modifications using ANA helps reduce costs. Changes typically can be made by fewer people in less time, and this translates directly into cost savings. For example, when any new business function, process, or entity needs to be added or deleted from the network, it already fits into a pre-defined canvas. If something entirely new does come up that doesn’t fit existing parameters, it’s easy to design a new bubble type and add that compartment to the network. In addition, ANA allows for centralized management that is consistent across the entire network. Instead of exceptions being the rule, centrally managed frameworks for each bubble type allow all changes to be made from one point on the network for easier, more consistent, efficient and cost-effective administration.

3. **Improved Quality of Service** – ANA enables employees to communicate easily with business partners, and enables partners to be added or removed from the network dynamically. The network doesn’t have to be shut down and users don’t have to be taken off-line in order to make changes. In addition, this new approach enables network managers and administrators to be more responsive to management priorities and requests of internal clients. This helps reduce or eliminate backlogs, and facilitates better working relationships throughout the organization. It also improves the overall functionality of the network and enables the employees to take full advantage of the Internet.
Although implementation of an Agile Network Architecture solution is more costly on the front end than technology-based patch-and-fill, long-term savings more than make up for the initial investment. ANA delivers robust, durable solutions that provide answers to immediate problems and deliver cost reductions and savings over the long-term, as well. Hewlett-Packard’s own experience is a testament to those benefits.

**HP’s Invention and Experience**

Hewlett-Packard invented Agile Network Architecture. When HP divested Agilent a number of years ago, the company designed the bubble approach in order to facilitate the divestiture. The HP team figured there had to be a better way and set about re-engineering networks from the ground up. The company already has been awarded two patents for the processes and design elements that form the underpinnings of ANA, and four more are pending.

The benefits of this new approach are dramatic. When HP divested VeriFone – which had 1,500 employees in 20 offices in the US, Europe and Asia – all were cleanly separated from the HP internal network on the day the transaction closed, eliminating the risk of unauthorized access and completing the divestiture in a matter of hours instead of months.

The new network also facilitates cross-company collaboration. For example, HP connects or disconnects an average of 10 business partners a day to its network. Using the old paradigm, partner integration took six months. Now, it takes on average six hours.

ANA saves HP more than $30 million a year in reduced administration costs, lower operating expenses and shortened acquisition lead times. For example, when HP merged with Compaq, the 78,000 Compaq employees in 60 offices worldwide were integrated into the HP internal network on the first day of trading as the new company. On day one, a single employee portal was universally available, and the two companies’ networks were integrated and secure. Employees of the new HP can plug into the company network at any site in any country and get access to all pre- and post-merger resources.

This track record of invention and experience, combined with HP’s collaborative approach and long history as a trusted adviser, give HP distinct advantages in working with other organizations to design and implement the networks of the future. HP’s focus on business results and return on IT investment, rather than a technology-driven approach, is unique among solution providers. In addition, HP has global reach. Because HP engineers and consultants in the company’s offices throughout the world already have designed and implemented an Agile Network Architecture, they stand ready with the skills and experience to do it successfully for others, as well.

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