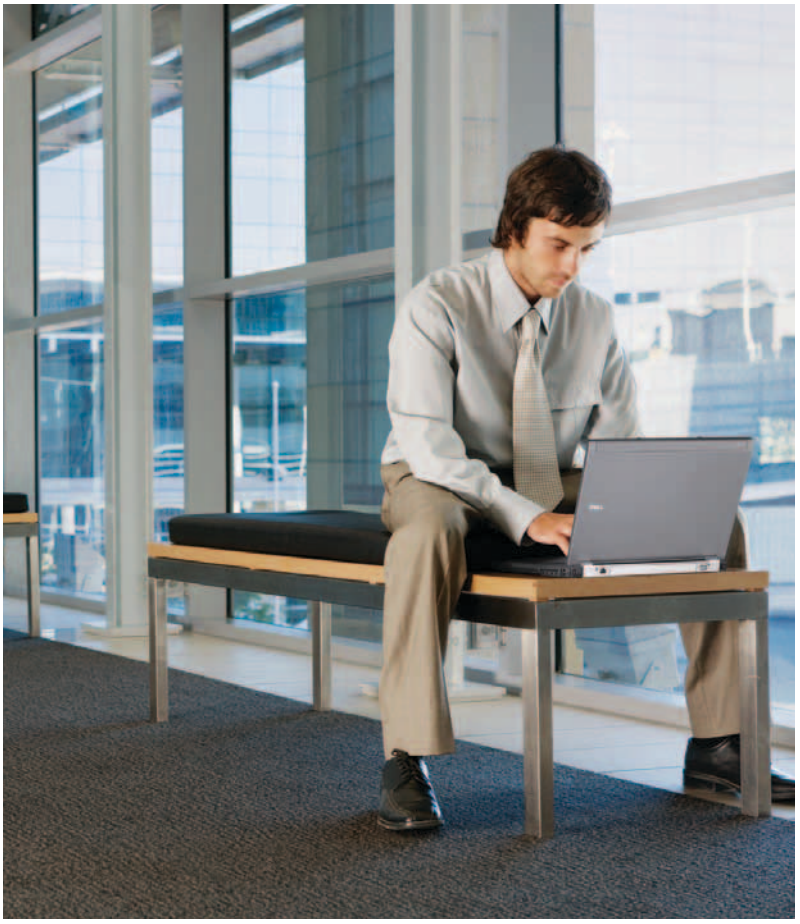

A network access architecture for the mobile enterprise

By Pratik Mehta, Dilip Patel, and Gabby Chan

Mobile devices are rapidly moving into the enterprise. Dell™ PowerConnect™ W-Series network platforms with the Dell PowerConnect W-Series Mobile Virtual Enterprise (MOVE™) architecture provide secure, context-aware access to network resources wherever the workforce happens to be.

Enterprise mobility has come to the mainstream and along with it, the social consumer Internet experience: multimedia content, heavy use of rich collaboration technologies, and cloud-based applications. These changes offer tremendous opportunities for accelerating productivity and innovation, and enterprise users are embracing them as an integral aspect of how work gets done.

At the same time, mobility advances may strain IT-deployed networks based on legacy client-server architectures, which typically consist of the following:

- Siloed networks that duplicate functions and infrastructure at the access layer.
- Fragmented services at the edge of the network where applications meet users and devices.
- Multiple bolt-on technologies that fail to cohesively address the particular needs of mobile workers.

As a result, legacy access infrastructures may hinder IT organizations from providing flexible and cohesive mobility solutions—making it challenging to incorporate mobile devices into enterprise networks for anywhere, anytime access to business-critical applications.

To address the needs of the mobile workforce, the Dell PowerConnect W-Series network platform incorporates the Dell PowerConnect W-Series (MOVE) architecture. This offering enables IT organizations to successfully deploy an enterprise network designed to meet cutting-edge mobility, security, and manageability requirements.[1]

User-centric, role-based access architecture

The MOVE architecture unifies disparate wired, wireless, and remote access methods into one cohesive access solution for traveling professionals, remote or branch employees, headquarters employees, and guests (see Figure 1). It represents a fundamental shift from more than 20 years of port-centric network architectures. Instead of focusing on physical devices—the core of network access—it places network services at the edge of the network,

[1] For more information about the Dell PowerConnect W-Series platform, see "High-performance wireless connectivity for mobile workforces," by Pratik Mehta and Dilip Patel, in *Dell Power Solutions*, 2011 Issue 1, content.dell.com/us/en/enterprise/d/business~solutions~power~en/documents~ps1q11-20110250-aruba.pdf.aspx.

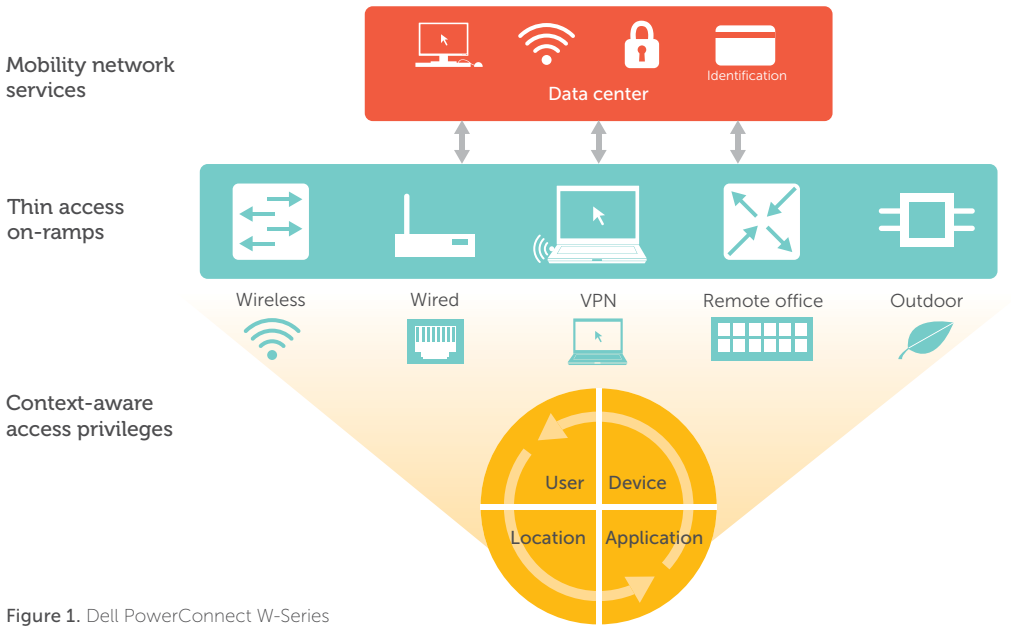

Figure 1. Dell PowerConnect W-Series MOVE architecture

where a user's mobile device initially connects to access enterprise applications.

Mobility network services, which include identity management and role-based policy enforcement, are centrally managed through a Dell PowerConnect W-Series mobility controller in the data center (see Figure 2). This centralization helps to eliminate the need to maintain a profusion of wiring closets, firewalls, network access control (NAC) systems, management systems, and reporting tools that operate in separate domains.

The MOVE architecture also includes access on-ramps designed to use network services across all locations and access methods. Context-aware access privileges are based on user, device, application, and location. This approach allows mobile workers to obtain consistent, secure access to the appropriate network resources based on who they are—regardless of where they are, what devices they are using, or how they are connected. In addition, the MOVE architecture accommodates individuals with multiple devices, whether enterprise-provisioned or user-owned.

Saying yes to mobility

Dell PowerConnect W-Series mobility controllers and access points enable outstanding performance for Wi-Fi–enabled mobile devices, scaling from remote branch offices to large enterprises. By implementing an access network powered by Dell PowerConnect W-Series wireless platforms, organizations benefit from secure, reliable enterprise networking—no matter where their workers are.

Dell PowerConnect W-651 mobility controller

Dell PowerConnect W-650 mobility controller

Dell PowerConnect W-AP105 indoor access point

Model	Suitability	Capability
W-600 series	Small businesses and branch offices	Manage up to 16 access points; up to 2 Gbps firewall throughput; print server and network attached storage (NAS); 3G modem support
W-3000 series	Medium-to-large offices and branches	Manage up to 128 access points; up to 4 Gbps firewall throughput
W-6000 series	Large enterprises and data centers	Modular chassis with up to 4 controller modules and redundant power supplies; manage up to 2,048 access points; up to 80 Gbps firewall throughput

Figure 2. Deployment options and specifications of the PowerConnect W-Series mobility controllers

This user-centric approach to network access helps IT organizations to accommodate the influx of smartphones, tablets, laptops, and other personal mobile devices that employees are bringing to work. It also strengthens security and helps simplify user administration across enterprise networks.

The Dell PowerConnect W-Series mobility controllers are designed to work seamlessly with any mix of PowerConnect W-Series access points and to deliver high-performance, secure, and reliable wireless access and management of all access points. In the MOVE architecture, these access points serve as infrastructure on-ramps.

The 802.11n-based PowerConnect W-Series access points support distributed and centralized traffic-forwarding modes, while providing exceptional radio-frequency (RF) management through Adaptive Radio Management (ARM) technology (see Figure 3). ARM technology is designed to optimize Wi-Fi client behavior and automatically enable the access points to stay clear of RF interference.

Dell access points offer RF management and monitoring capabilities without requiring dedicated modes of operation. For example, the Dell PowerConnect W-AP124 and PowerConnect W-AP125 are well suited for Wi-Fi coverage in business environments with extremely high concentrations of mobile devices.

Rightsizing for an efficient enterprise

At a time when network traffic is increasing faster than budgets, MOVE architecture enhances enterprise mobility, while helping to eliminate unnecessary equipment from data centers and wiring closets—thereby helping to reduce capital and operational expenses.

Dell PowerConnect W-6000 mobility controller

Dell PowerConnect W-AP175P outdoor access point

MOVE network services consolidate the functions of multiple independent management tools, configuration servers, location servers, NAC systems, virtual private networks (VPNs), spectrum analyzers, and wireless intrusion detection systems. In legacy networks, this complex maze of functions typically requires separate devices to install, manage, maintain, and troubleshoot.

Instead of requiring an administrator to configure a host of devices in the network core, MOVE automates common tasks and is designed to require little or no manual intervention. Dell PowerConnect W-Series access points are self-installing and self-configuring through predefined parameters created in the PowerConnect W-Series mobility controller. This zero-touch approach helps eliminate expensive engineering and manual configuration and makes it easy to support remote locations without on-site IT staff.

In addition, the MOVE architecture is designed to let IT organizations deploy efficient, thin on-ramps based on specific access needs without sacrificing consistency, security, reliability, or performance. For example, the MOVE architecture enables branch offices to reduce capital and operating costs by avoiding the need for costly branch routers. Moreover, the MOVE architecture helps to reduce overbuilt wired networks by replacing infrequently used ports with Wi-Fi access.

Convincing case to MOVE

With enterprise mobility at a critical juncture, the MOVE architecture helps organizations cut costs and reallocate budgets in a way that aligns with critical business initiatives.

Cost-effective integrated access architecture

The Dell MOVE architecture enables enterprises to get their entire access networks ready for mobility. In the process,

it can help enterprises reduce their total cost of ownership (TCO), compared to legacy fixed-network approaches, through the following strategies:

- Unifying the number of network, security, and management services required for different network on-ramps
- Accelerating the move to a near-gigabit wireless 802.11n network
- Moving to thin on-ramps at the edge for more cost-effective Wi-Fi access

Simple access from remote locations

By taking advantage of centrally managed services, the MOVE architecture streamlines the process of providing network access to remote locations. For example, instead of employing well over a dozen steps to configure network access using a legacy approach, non-technical workers can configure the Dell solution in just three simple steps.

Fast campus additions, moves, and changes

The MOVE architecture helps eliminate traditional tasks that IT departments must perform to complete additions, moves, and changes. For example, instead of spending half an hour to configure each device in the wiring closet, administrators may make only one change to the PowerConnect W-Series mobility controller. The mobility controller then does the rest, pushing out configurations to local devices.

Robust security

The MOVE architecture provides concurrent visibility into the identity of users, their devices, and their locations on both wired and wireless networks. This visibility helps IT organizations quickly identify and mitigate potential threats.

For example, a retailer with stores located in busy shopping areas may capture 20,000 potential rogue access points each day. If the retailer had to investigate each individual event, it would be unable to find any actual rogues until after damage had been done. The ability of the MOVE architecture to correlate wired and wireless events enables IT security teams to prioritize their threat-mitigation efforts.

Model	Suitability	Capability
W-AP68	Very-low-density deployments	Single radio; 2.4 GHz only; 802.11n; data rates up to 150 Mbps
W-AP90 series	Low-density deployments	Single radio; dual-band 2x2 MIMO 802.11n; data rates up to 300 Mbps
W-AP105	High-density deployments	Dual radio; dual-band 2x2 MIMO 802.11n; data rates up to 300 Mbps per radio
W-AP120 series	High-density, ultra-high-performance deployments	Dual radio; dual-band 3x3 MIMO 802.11n; data rates up to 300 Mbps per radio
W-AP175	Outdoor, rugged deployments	Dual radio; dual-band 2x2 MIMO 802.11n; data rates up to 300 Mbps per radio

Figure 3. Deployment options and radio specifications of the PowerConnect W-Series access points

High user satisfaction

The MOVE architecture gives the extended enterprise workforce—employees, business partners, contractors, and guests—a single, consistent way to access the appropriate corporate resources. Role-based access policies allow IT to control users and devices, so that employees can switch effortlessly between desktops, laptops, tablets, smartphones, and other mobile devices.

The unified user- and device-centric access enabled by the Dell MOVE architecture means that users are not required to change the way they access the network to work from different locations. This type of access infrastructure helps to cut down user confusion, increase worker productivity, and reduce IT service-desk calls while increasing user satisfaction.

A network matched to today's mobile workforce

The Dell MOVE architecture is driven by mobility and the proliferation of Wi-Fi–enabled mobile devices, which are connecting to enterprise networks in unprecedented numbers. Today, workers are always on the move and commonly use more than one device to access the enterprise network. Consequently, it makes sense to manage and secure network access based on the identity of individual users, rather than the location or the devices from which users are working.

Not only does the MOVE architecture link access privileges to a user's identity, it is designed to securely unify disparate networks and eliminate redundant services. In this way, it helps to drive the capital and operational cost savings that free budgets—enabling IT organizations to say yes to mobility, the influx of mobile devices, access to applications, and promising business initiatives. PS

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