



Today's Airport Environment Is Challenging

With changing business models, diminishing revenues, and heightened security requirements, airport executives must provide secure transportation, reduce costs, and promote incremental revenues. However, airports have numerous disparate networks that are inflexible and expensive to operate.

- **Infrastructure cost.** With voice, video, and data networks running for airport management, airport surveillance and security, retail operations, and airlines, airport IT infrastructure has become a major hurdle that must be streamlined and simplified for the sake of controlling costs and helping ensure its manageability.
- **Facility utilization.** The supply of adequate gate space, particularly during peak hours, has become a major concern at most airports. Airports need flexible solutions to free up unoccupied gates to supply peak demand and generate revenue from other airlines.
- **Revenue generation.** Amid the decline of revenues from airlines, airports need to find new streams of income. Capturing and generating non-aeronautical revenue have become crucial elements in today's airport strategy.
- **Complex safety and security requirements.** Moving people, objects, and information through facilities has become a more complex task for airports, while accelerating the turnover of people and airplanes is crucial to revenue growth.

What Is Network Virtualization?

Network virtualization (also referred to as enterprise LAN virtualization) is a set of technologies that enables

IT groups to deploy and manage IT resources as logical services instead of physical resources. Network virtualization allows IT administrators to segment and align IT services to meet the specific needs of the users and groups on the network.

In other words, instead of thinking about managing backbones, campus buildings, and branch office domains, IT personnel can use network virtualization to manage Internet access, voice and video services, RFID-enabled inventory applications, and so on. By managing the network to correspond more directly to the services that people use, IT can focus on adding value to user productivity and closely managing operational expenditures.

The Value of Network Virtualization for Airports

How do you have multiple tenants undertaking multiple business activities in the same facility and provide all their needs without having chaos at the same time? And how do you make sure that their operations are secure and do not jeopardize the integrity of the airport infrastructure?

Cisco® Network Virtualization enables airports to securely consolidate disparate application-specific networks over a common IP network infrastructure, resulting in simplified operations, maximizing network resources, eliminating duplicate network equipment and costs, and generating additional income opportunities. The network becomes a one-stop shop that is easy to manage and easy to use.

Network virtualization can accomplish many business objectives, helping airports and transportation hubs to deploy and operate services while maintaining security and compliance.

A virtualized network enables airports to move to a new communications-based service provider model. This new model drives incremental revenues and differentiated services to the airlines, retailers and other airport tenants.

- **Optimize resource utilization and increase operational flexibility:** Network virtualization combined with wireless networking enables airlines to run their passenger operations from any available gate, therefore optimizing the utilization of gates during peak hours.
- **Help ensure network security and passenger safety:** With video surveillance and integrated physical security system on a single secure virtualized network, it is easy to set up new security areas and quickly locate the location of an incident or of a defective end-point system, such as a camera.
- **Generate non-aeronautical revenue:** From parking solutions, retail operations, to freight and passenger management, the common backbone architecture of a virtualized network makes it easy to deploy and manage revenue-generating services to airport customers.

The Functionalities of Network Virtualization

Network virtualization provides seven levels of functionalities that enable the system to remain secure and manageable on a common architecture.

This new IP infrastructure also serves as a base for future applications to be introduced at the airport.



Cisco Network Virtualization for the Airport Industry

Delivered on Cisco Catalyst Switches

Airport Benefits	Network Virtualization Design Characteristics	Recommended Switch Functionality	Cisco Device Support
<p>LAN consolidation pools together network resources and applications for all existing users (airlines, retailers, travelers, vendors, and so on), enabling significant operational expense and management efficiencies.</p> <p>Guest access prevents travelers and guests from accessing confidential information and resources or from inadvertently introducing malware into the network.</p> <p>Partner and vendor access provides secure access to business partners to authorized applications and data.</p> <p>Protection from spyware, viruses and worms, and other malware. Mitigate threats at the edge and remove harmful traffic before it reaches other clients in the network.</p> <p>Divisional separation separates and protects groups of users such as retailers or airlines from security systems and passenger screening operations.</p> <p>Device isolation isolates check-in terminals of a particular airline from the terminals of other airlines to protect passenger transactions and airline privacy.</p> <p>Hosted services provide anytime, anywhere IT services for airport tenants such as airlines, retailers, and other vendors. Coupled with wired or wireless LAN, applications and information can be pushed to the airport's very mobile work force.</p>	<p>Access control</p> <p>Path isolation</p> <p>Services edge</p>	<p>Static VLAN assignment</p> <p>Cisco NAC Identity (802.1X)</p> <p>VRF-Lite and GRE</p> <p>VRF-Lite end-to-end</p> <p>MPLS VPN</p> <p>Uprotected services access</p>	<p>Cisco Catalyst Switches 6500, 4500, 3750-E, and 3560-E</p> <p>Cisco Network Admission Control Appliance</p> <p>Cisco Catalyst Switches 6500, 4500, 3750-E, and 3560-E</p> <p>Cisco Catalyst Switches 6500 and 4500</p> <p>Cisco Catalyst Switches 6500, 4500, 3750-E, and 3560-E</p> <p>Cisco Catalyst Switch 6500</p> <p>Cisco Catalyst Switches 6500, 4500, 3750-E, and 3560-E</p>

Cisco Catalyst Switches Enable Network Virtualization

The Cisco Catalyst® series of Ethernet switches, including the Cisco Catalyst 3560-E, 3750-E, 4500, and 6500, all support Cisco Enterprise LAN Virtualization solutions. In addition, the Cisco Catalyst 6500 Virtual Switching System (VSS) 1440 takes the Cisco Catalyst 6500 platform to the next level with network system virtualization. By moving away from the legacy approach using campuswide Layer 2 VLANs, the following requirements are met:

- Smooth migration without long network disruptions
- Segmentation between the different customers
- Central services zone for shared services
- Accommodation of advanced multicast requirements
- Integration of technologies such as WLAN into the network while keeping PWLAN usage separated from operational WLAN traffic

Why Cisco?

Cisco is the only vendor that offers a proven network virtualization solution that spans the entire infrastructure from the network backbone to every endpoint in every location.

When they deploy network virtualization across an integrated Cisco network infrastructure, airports can reduce the management complexity of multiple services such as unified communications, mobility, and security. The Cisco Enterprise LAN Virtualization solution allows IT staff to manage the services on the network, not just the network itself, making it easier and faster to design and deploy new services and to isolate users, resources, and devices for compliance and security reasons.

As the most experienced IP networking company in the world, Cisco backs its solutions with decades of experience and expertise, proven best practices, and world-class service and support.

Additional Resources

Cisco Airport Solutions: <http://www.cisco.com/web/strategy/transportation/airports.html>

Cisco Network Virtualization: <http://www.cisco.com/en/US/netsol/ns872/>

Cisco Catalyst Switches Series: <http://www.cisco.com/en/US/products/hw/switches>