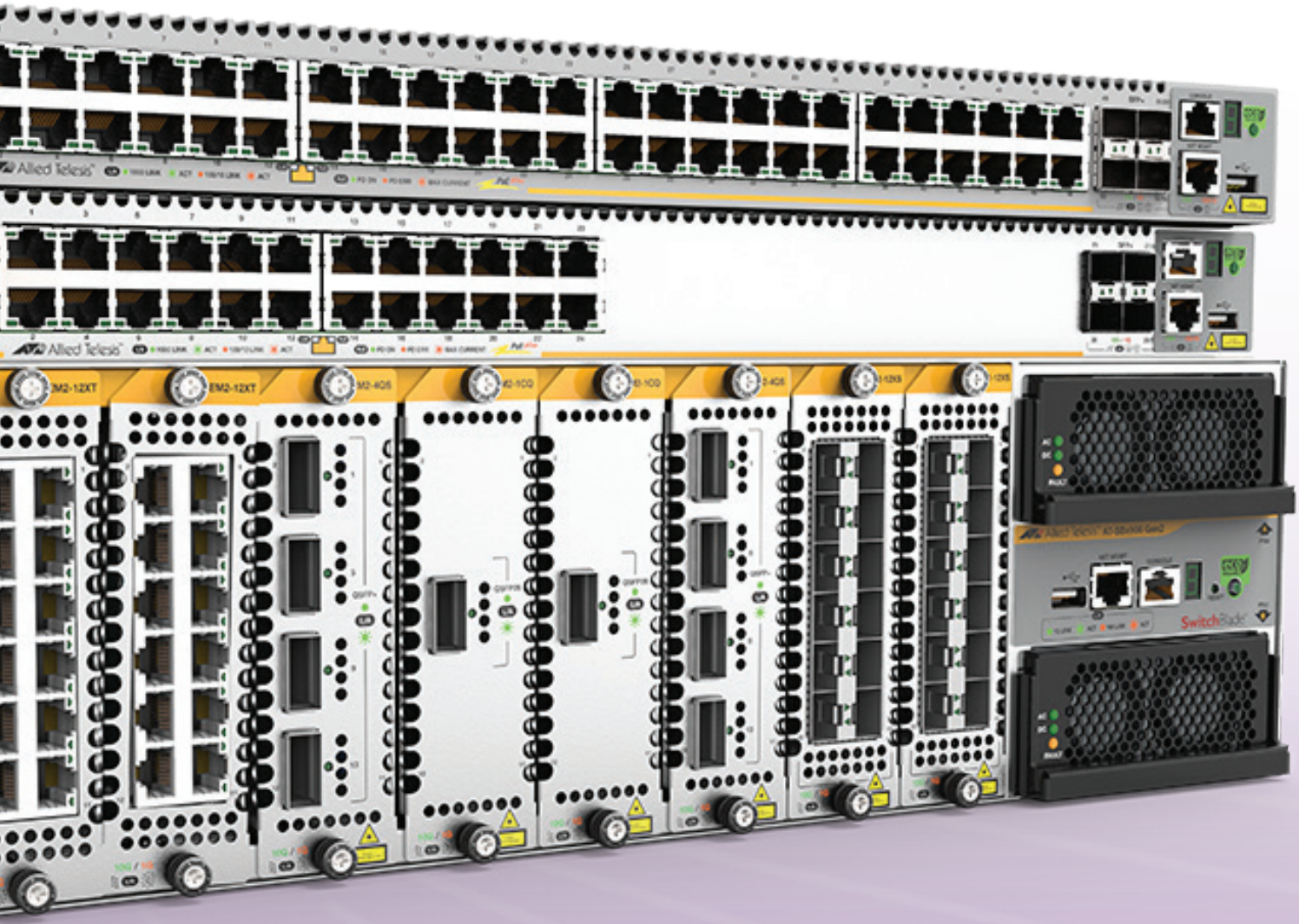
Solution Guide

Allied Telesis

Allied Telesis provide Virtual Customer Networks over Shared Ethernet Infrastructure



NETWORK SMARTER

Introduction

Today's building management companies can derive revenue from their commercial tenants by providing facilities beyond just floor space. Reliable and secure network connectivity and data storage services are now highly attractive to commercial tenants. However, when your company manages a multiple tenant building—this could be a shopping mall or office block—how do you provide these services securely, affordably, and simply?

The key is to be able to build a single network infrastructure through the building, and then allow the individual tenants to overlay their own virtual networks over this shared infrastructure. Moreover, it is vital that you achieve this network virtualization securely. Individual tenants need to be 100% confident that their virtual network is completely invulnerable to snooping or infection by other tenants.

In addition, to meet your network management needs the infrastructure must be resilient, scalable, and simple to manage.

Allied Telesis have developed a combination of products and features that provide remarkably secure, reliable, high-performance virtual network infrastructure at extremely cost-effective price points.

Virtualization

The key component in this solution is the standards-compliant VLAN encapsulation (known as VLAN double tagging or QinQ). This makes it possible for each tenant to have their own complete VLAN structure overlaid onto the physical network, running parallel with every other tenant's VLAN structure, even if they are using the same VLAN IDs as other tenants.

Each tenant is assigned a unique encapsulating VLAN, which forms their own virtual tunnel right across the whole shared network. On the shared segments, each tenant's data runs within its own tunnel, completely separated from anyone else's data, with no possibility of cross-over from one virtual network to another.

Resilience

Allied Telesis premium ring resiliency technology, Ethernet Protected Switching Ring (EPSR), has been developed and hardened in demanding Service Provider and Telco sectors. This technology provides true carrier-class network resiliency, and has been made available on Allied Telesis switches at an Enterprise-level price point with absolutely no drop in reliability or performance.

The layout of typical commercial premises, such as office blocks, shopping malls, and airports, lends itself to the use of a core ring of switches as a high-speed backbone of the network infrastructure. This highly resilient network technology is perfect to overlay multiple virtual networks for many tenants or clients, where everyone benefits from the maximum network uptime and high bandwidth provided.

More information on using EPSR in enterprise applications can be found on our website www.alliedtelesis.com.

As well as EPSR, a number of our switch series also support standards-based G.8032 Ethernet Ring Protection.

Other features such as excellent network storm control and prioritisation of network control traffic also contribute to creating extremely high network availability. Add switch hardware features like dual hot-swappable power supplies, and continuation of services is all but guaranteed.

Security

Allied Telesis switches combine leading LAN security with comprehensive privacy protection to ensure complete security for end-customers who virtualize their LANs over a shared physical infrastructure. More information on the advanced LAN security features found in Allied Telesis switches can be found on our website.

The IP-binding and Private VLAN (using MAC-Forced Forwarding) implementations in Allied Telesis products have been developed to meet the stringent user privacy and data security requirements of Service Providers. Private VLANs ensure that no traffic from a switch port can be seen from another switch port. The addition of MAC-Forced Forwarding adds further security by sending all traffic only to a specific known destination, making snooping on your neighbour near impossible. Commercial tenants can be fully confident that their privacy and security is ensured.

Other documents you may be interested in:

Solutions:
Find out how our products and industry-leading features create solutions to meet your business needs.

Feature Overview Guides:
Find out how to set up and configure key features on Allied Telesis advanced switches and routers.

Success Stories:
Read customer success stories featuring Allied Telesis superior products and features.

For these documents and many more, visit:
http://www.alliedtelesis.com/library

Performance

As the corporate world comes to rely more than ever on Information Technology resources and applications, a high performance, high availability infrastructure is vital. An EPSR ring at the core of the network provides these performance benefits:

- High bandwidth: An EPSR ring can run at up to 10, 40, or 100Gbps, utilizing today's fastest Ethernet speeds for maximum data throughput.
- Immediate access: Seamless connectivity via voice, video, or email is maintained, and network servers are accessible with no delay.
- High availability: With no single point of failure, continuous access to critical business data and network resources is maintained.
- Application versatility: High bandwidth and ultra-fast failover lend themselves to multiple applications simultaneously using the network. Real-time applications like surveillance, video streaming and Voice over IP (VoIP) can be used right alongside data and Internet access.

The Allied Telesis SwitchBlade x908 GEN2 and x950 Series switching fabrics provide extremely powerful and reliable forwarding engines over which to lay the network infrastructure. All Layer 2 and Layer 3 forwarding, traffic filtering, data encapsulation, traffic prioritization, and network storm protection are carried out at wire-speed on all interfaces with low latency.

Scalability

The flexibility of the SwitchBlade x908 GEN2 and x950 Series switches makes network expansion incredibly simple. The modular chassis design, coupled with the hot-swappable interface modules, mean that it is possible, for example, to upgrade the bandwidth of the core ring with absolutely ZERO downtime.

Similarly, as client device numbers increase, new sets of client-facing ports can be hot-swapped into the chassis, and new clients connected, with no service disruption.

The advanced design of the switching hardware provides a platform that will not be obsolete for many years to come. The hardware is already completely IPv6 capable. The Layer 2 and Layer 3 forwarding table and hardware ACL table capacities are measured in the thousands—this is a platform that is well able to support major network and service expansions, and network technology advances.

Solution overview

The virtualization of a single physical network infrastructure (seen in Figure 1) can provide a real private network for a number of different tenants. By using VLAN encapsulation over an EPSR ring, and deploying Allied Telesis secure LAN switches, this network is resilient, secure, scalable, and high performing.

As well as providing these core data storage and Internet services, Allied Telesis switch technology allows you to make additional services available to tenants.

A combination of a Power over Ethernet (PoE) access layer with the high-speed shared core is ideal for having a video surveillance network overlaid on it. Multicast streams from multiple cameras attached to diverse locations on the network are carried back to a central control center via a dedicated video VLAN that is laid across the physical network. Camera control signalling is also transported in this same VLAN.

A separate virtual Voice over IP (VoIP) network can also be provided for multiple tenants, providing them with the many benefits that advanced VoIP systems have to offer.

Figure 2 shows VoIP and Video surveillance virtual networks overlaying the physical network infrastructure.

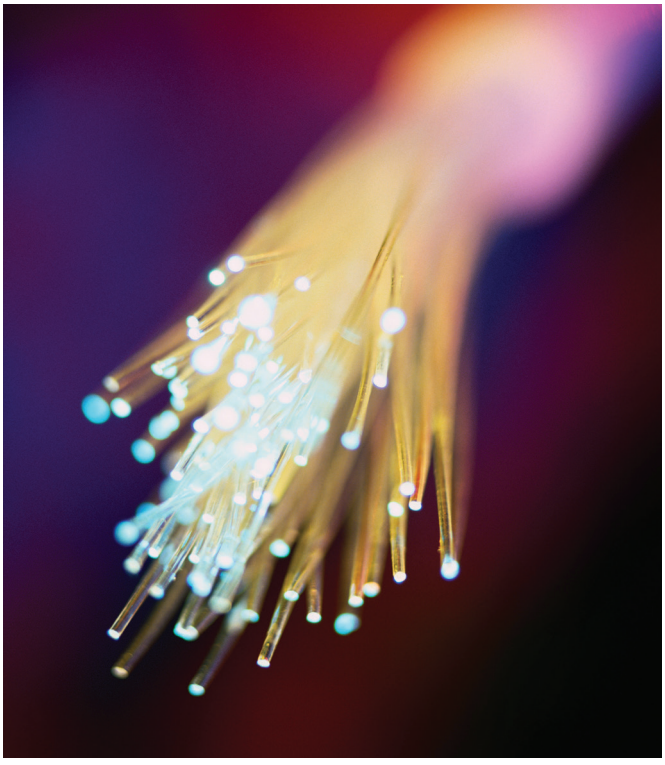


Figure 1: Secure virtual networks over a single physical infrastructure

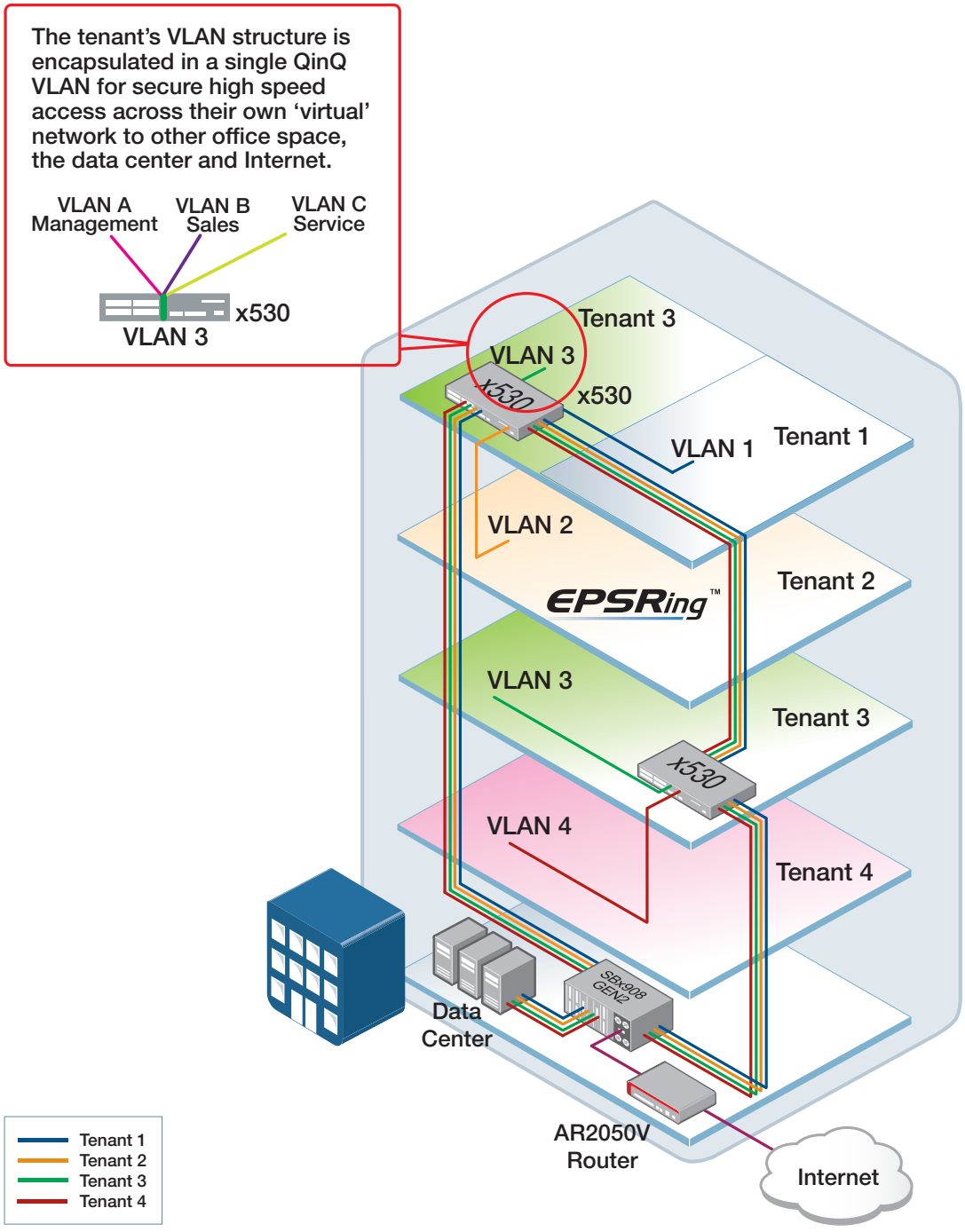
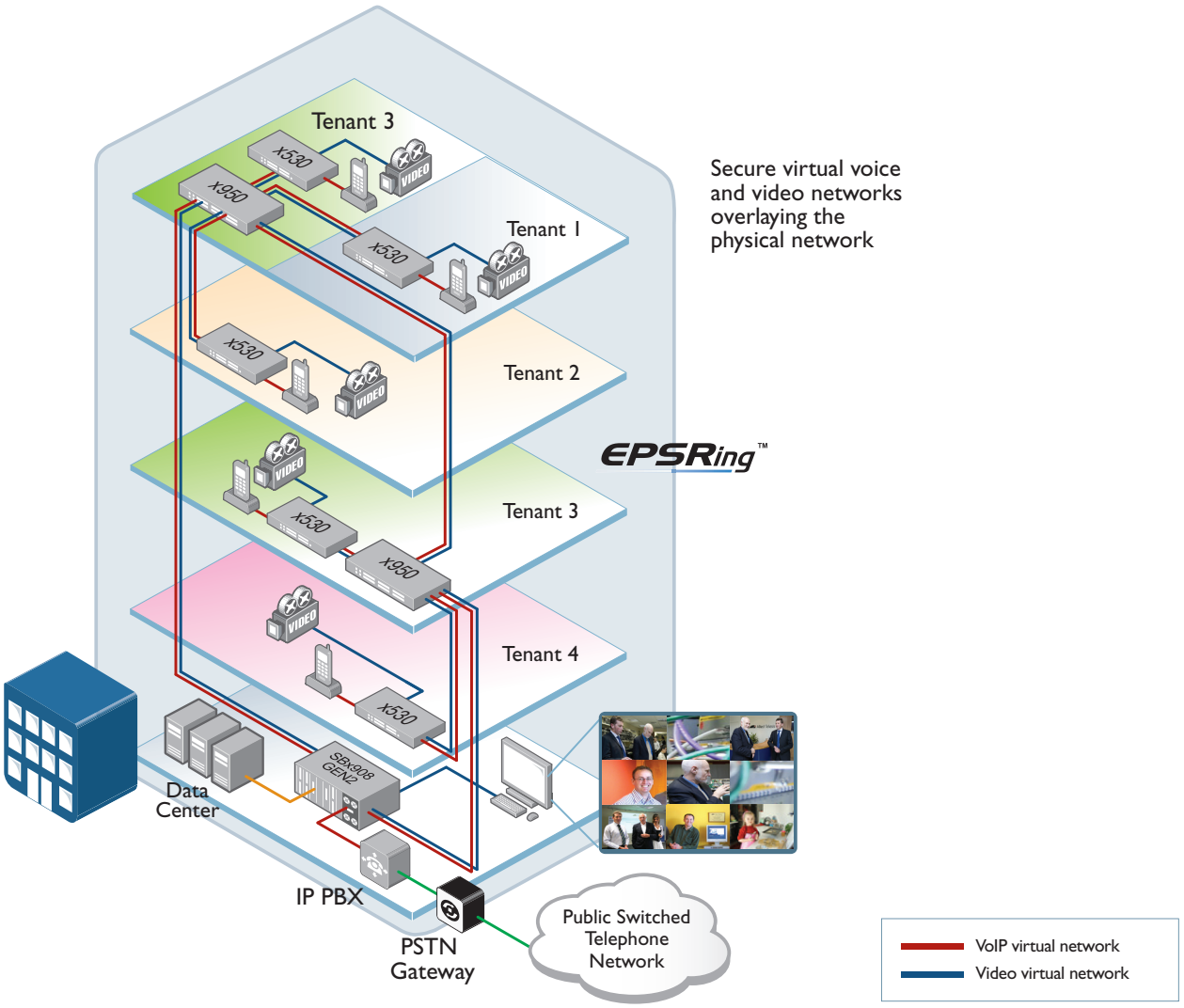


Figure 2: Secure virtual voice and video networks



Summary

By ensuring always-available online applications and resources, and total security of data for tenants, building management companies can offer advanced network technology solutions to prospective tenants as a real value-added service. The addition of VoIP phone systems and video surveillance for building security simply makes the value proposition offered outstanding.

Tenants receive the best in leading edge networking and data services without the large capital outlay required to build a complete physical network themselves. They can also be confident in their choice of location, with leading-edge IP multicast building security ensuring 24/7 surveillance of their premises.

High performance networking made available with the Allied Telesis network virtualization solution.

About Allied Telesis

For over 30 years, Allied Telesis has been delivering reliable, intelligent connectivity for everything from enterprise organizations to complex, critical infrastructure projects around the globe.

In a world moving toward Smart Cities and the Internet of Things, networks must evolve rapidly to meet new challenges. Allied Telesis smart technologies, such as Allied Telesis Autonomous Management Framework™ (AMF) and Enterprise SDN, ensure that network evolution can keep pace, and deliver efficient and secure solutions for people, organizations, and "things"—both now and into the future.

Allied Telesis is recognized for innovating the way in which services and applications are delivered and managed, resulting in increased value and lower operating costs.

Visit us online at **alliedtelesis**.com