



IoT Video Security Fabric

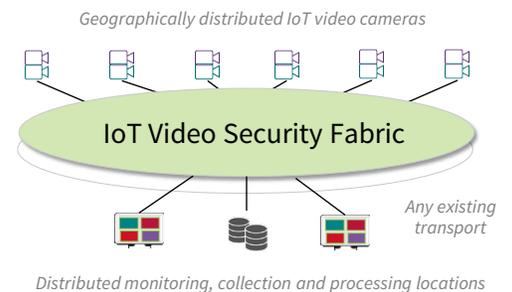
Industry-first open networking solution optimized for cost-effective video surveillance and security

Highlights

- **Cost-effective capacity and performance:**
Lowers capex and improves capacity utilization with Dell EMC open network switching + efficient, simple multicast
- **Ease of deployment and migration:**
Works with any existing transport network
- **Simplified operations:**
Dramatically simplifies building and operating distributed IoT video networks
- **Secure segmentation:**
Ensures IoT video traffic is isolated from other applications

IoT Video Networking. Simplified.

The Pluribus IoT Video Security Fabric dramatically simplifies the deployment, provisioning and operation of IoT video networks for security and surveillance. Based on the Pluribus Adaptive Cloud Fabric™ and Dell EMC open network switching, the IoT Video Security Fabric creates a unified and automated multi-site network fabric incorporating highly-efficient multicast forwarding capable of efficiently delivering multicast video streams from thousands of IoT endpoints to multiple monitoring, collection and analysis points.



Applications

The IoT Video Security Fabric is ideal for geographically distributed IoT video security and surveillance networks in multiple use cases, including:

- Safe + Smart Cities
- Transportation
- Utilities
- Campus environments in enterprise, government and education

Requirements for Efficient, Secure IoT Video Networking

IoT video security growth creates substantial network infrastructure challenges. Traditional IP networking architectures are too expensive, inflexible and operationally complex to meet these challenges.

Cost-effective Capacity: Broader proliferation of IoT cameras and higher definition video streams increase network capacity and performance requirements. Core networks may require multiple 10G or 100G links between nodes. Building such a network with traditional routers is expensive. Open network switching hardware can reduce capital expense (capex), by 40-60%.

Efficient and Simple Multicast Routing: Effective, resilient video security operations increasingly require redundant monitoring and collection sites and AI-enabled processing. That in turn demands efficient delivery of video streams to multiple endpoints using multicast forwarding. Traditional multicast approaches, based on the Protocol Independent Multicast (PIM) protocol, require a costly router to be deployed and configured at every hop in the network and are extremely complex to manage. A better approach to multicast is required to scale IoT video networks cost-effectively.

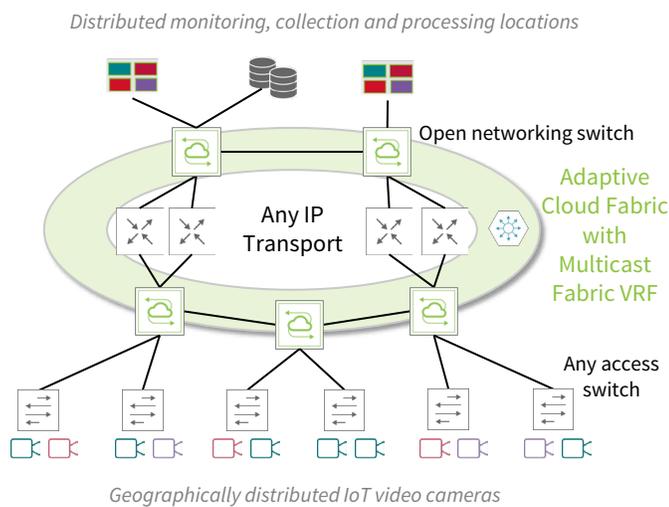
Simplified deployment, migration and operations: PIM multicast network deployment, configuration and provisioning of multicast streams can be complex and consume scarce IT resources. Provisioning, monitoring and troubleshooting of large-scale IoT video networks with hundreds or thousands of multicast video streams can be frustrating, time-consuming and costly using traditional network tools. A simpler approach is needed for IoT video network deployment, migration and operations.

Secure IoT Traffic Segmentation: Widely distributed IoT devices create new network security challenges, offering a broad attack surface for security breaches that can give hackers access to mission-critical enterprise systems and confidential customer data. To prevent such breaches, IoT video traffic must be isolated with strong network segmentation.

The Pluribus IoT Video Security Fabric addresses all of these requirements and dramatically simplifies IoT video networks.

Pluribus IoT Video Security Fabric Solution

The Pluribus IoT Video Security Fabric creates a unified and automated multi-site network fabric based on the Pluribus Adaptive Cloud Fabric and open network switching.



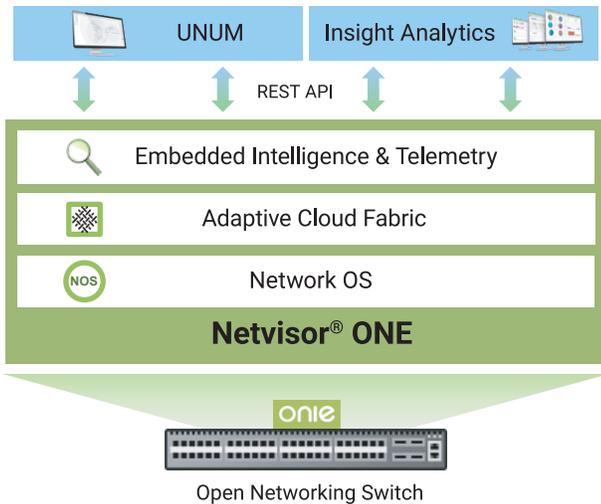
The **Adaptive Cloud Fabric** simplifies distributed multi-site IoT video networking by enabling fabric-wide, one-touch provisioning and visibility for efficient operations.

Built on white-box open network switching with a unique controllerless software-defined networking (SDN) architecture, the Adaptive Cloud Fabric delivers the high performance that video streaming demands while minimizing equipment cost per site and increasing resilience versus controller-based architectures. Based on standard layer 2 and layer 3 protocols, the Adaptive Cloud Fabric is compatible with any IP network transport and any network topologies (ring, mesh, hub/spoke) and can aggregate traffic from any access switch. It also incorporates deep network slicing for secure network segmentation.

Network Segmentation built into the Adaptive Cloud Fabric keeps IoT video traffic separate from other critical and sensitive enterprise applications. IoT video traffic is encapsulated into VXLAN overlays constructed with tunnels that terminate on the switches at the edge of the fabric. This enables a common network to be shared by IoT video and mission-critical enterprise traffic, achieving capital and operational efficiency while virtually eliminating the security risks created by the broad attack surface of hundreds or thousands of IoT cameras

The innovative **Multicast Fabric Virtual Routing Function (VRF)**, a virtualized service incorporated into the Adaptive Cloud Fabric, dramatically simplifies IoT video provisioning and operations. Unlike traditional multicast architectures that require every node in the network to be PIM-capable, the Multicast Fabric VRF implements a highly-efficient, SDN-enabled distributed multicast forwarding approach with dynamic multi-stage replication at the fabric edge devices, which enables efficient multicast video streaming over any IPv4 unicast transport. This PIM-free solution provides equivalent bandwidth efficiency to PIM by avoiding ingress traffic replication, while eliminating the need for costly PIM-capable routers at every hop and the complexity of PIM configuration and management. It also scales easily to thousands of video sources and multicast streams with secure segmentation and fabric-wide visibility for every flow. And since the Multicast Fabric VRF is a service of the Adaptive Cloud Fabric, end-to-end service provisioning is automated so multicast streams can be created, joined and re-configured on demand with one-touch fabric-wide commands.

Solution components



- **Open network switching hardware** from Dell Technologies, providing cost-effective performance, choice and flexibility
- **Pluribus Netvisor ONE** network operating system and **Adaptive Cloud Fabric** software running directly on the open network switching hardware and integrating all required functions:
 - Best in class L2/L3 switching with open standards-based interoperability
 - Network virtualization using hardware-accelerated VXLAN tunnels
 - Rich set of virtualized services including the innovative Multicast Fabric VRF for distributed multicast forwarding
 - Deep network segmentation across data, control and management planes
 - Comprehensive automation of underlay and overlay networks and services
 - Built-in flow monitoring and telemetry
- **Pluribus UNUM** graphical network management platform for complete life-cycle network and service management
- **UNUM Insight Analytics** software for comprehensive network and flow monitoring, analysis and troubleshooting

Pluribus IoT Video Security Fabric Benefits

The Pluribus IoT Video Security Fabric is a powerful, flexible and secure solution that eliminates much of the complexity and expense of traditional IP networking infrastructure and delivers breakthrough efficiency for IoT video networks.

Benefits of a Pluribus IoT Video Security Fabric

- **Cost-effective capacity and performance:** With a combination of open whitebox switching and efficient multicast forwarding, the IoT Video Security Fabric lowers capex and improves capacity utilization compared to alternative approaches. Standards-based compatibility with any IP transport and access also allows for capex savings when migrating from an existing IoT video network or building on an existing IP core.
- **Ease of deployment and migration:** Building on standard protocols for interoperability and implementing multicast forwarding as an overlay service at the fabric edge, the IoT Video Fabric can work with any existing transport network and any access switching layer, enabling deployment into heterogeneous network environments and smooth migration from existing networks.
- **Simplified operations:** The combination of fabric-wide automation provided by the Adaptive Cloud Fabric and the innovative distributed multicast forwarding architecture dramatically simplifies building and operating distributed IoT video networks.
- **Secure traffic segmentation:** By incorporating deep network segmentation, the IoT Video Security Fabric ensures that IoT video traffic is isolated from other applications, reducing security risks to mission-critical enterprise applications and confidential customer data.

Break Through IoT Video Network Limits

Break through the limits of traditional networks and realize the power, simplicity and efficiency of the Pluribus IoT Video Security Fabric in your network. Contact Pluribus Networks or Dell Technologies today.