Highlights

- Automates the attachment of users, devices and VM-based applications to Fabric Connect virtual services across switches and APs that do not natively support Fabric Connect
- Seamlessly extends the Fabric Connect "simplified provisioning" to non-Fabric ExtremeSwitching, ExtremeWireless and third-party edge devices
- Enables simple plug and play deployment of wireless access points and other Fabric Attach capable network devices
- Optionally leveraged with Network Access Control for authentication, dynamic service provisioning and policy-based control of diverse end-points

One of the key benefits of Fabric Attach is not only the automatic and dynamic provisioning of VLAN and virtualized services within a Fabric Connect network infrastructure, but also the removal of those services when they are no longer required. This enables the creation of a secure, elastic and programmable network with services that expand and contract in step with an enterprise's needs and eliminates any potential back-door entry points to the network.

Extreme Fabric Attach

Zero-Touch User and Device Attachment to Extreme's Fabric Connect Services

Extending Fabric Connect

Extreme's Fabric Connect delivers an end-to-end virtualized network which reduces complexity and increases agility for network operators. By creating a "zero-touch" core that requires access-only layer provisioning, it minimizes the chance of core network misconfiguration, while enabling simple and secure deployment of any type of network service. All of this can be done without the need for configuration changes on intermediate/core nodes, even in environments where clients roam. However, extending these same capabilities to non-fabric based devices and their connected end-points presents its own challenge.

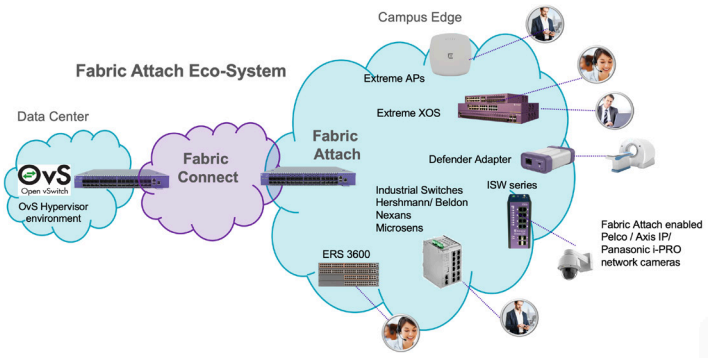
Enter Fabric Attach

Fabric Attach is a software-based feature that leverages the flexibility and extensibility of Fabric Connect to deliver automation and time-to-service enhancements to non-Fabric devices. Currently being standardized as IEEE 802.1Qcj, Fabric Attach extends the ease of provisioning of Fabric Connect to non-fabric platforms, including ExtremeSwitching, ExtremeWireless and third party devices. It effectively automates the connection to the Fabric Connect environment, enabling end-points to be quickly mapped to the appropriate virtualized Fabric Connect service.

How It Works

Integrating Non-Fabric Switches, APs and Users

With Fabric Attach, provisioning a non-fabric Ethernet switch or wireless access point (AP) to the Fabric Connect network is as easy as taking the Fabric Attach-enabled switch or AP "out of the box" and physically connecting it to a Fabric Connect-enabled switch. The Fabric Attach device then automatically configures itself with the appropriate management VLAN, preparing itself for the dynamic extension of virtualized fabric services on behalf of its connected end-point devices or users. This can speed the deployment of wired and wireless edge devices to the Fabric Connect environment. Efficiency is gained through automatic negotiation of Fabric Attach client VLAN assignments to switch ports without the need for administrator configuration. In addition, network security is enhanced whereby VLANs automatically created at the time of service instantiation are removed when the service is no longer required, thus reducing any back door-entry points and and the network's attack surface. These functional attributes can be especially valuable at locations where networking skills are at a premium, such as remote offices.



Dynamic Auto-Attach of Users, IoT and VMs to Fabric Connect Virtualized Services

Once the Fabric Attach capable switch or access point is connected to the Fabric Connect network, clients can connect to the network edge and request dynamic service extension and attachment. As users or devices connect, VLANs are dynamically created, port memberships dynamically changed and virtual service attachment is established. The process of user or device connection to a service is ubiquitous whether the user or device is wired or wireless.

Full automation is achieved via a centralized RADIUS server with policy enforcement – such as Extreme Control. ExtremeControl/RADIUS provides the capability for a Fabric Attach enabled switch to provision a local VLAN and map the VLAN to a Fabric Connect service thus enabling the user or device to communicate with the application(s) visible within that service. Leveraging ExtremeControl/RADIUS also provides the benefit of being able to authenticate the user/device and apply a role-based policy that follows the user or device as they connect and disconnect from the network.

Fabric Attach can be deployed on data center Top of Rack (ToR) switches to interwork with hypervisors that support OpenVSwitch to dynamically connect VM applications to a Fabric Connect network service. On the campus side of the network, Fabric Attach capable switches and access points can extend services and attach users and IoT devices to Fabric Connect-based services as they connect.

Secure, Elastic Network Services

Fabric Attach devices and users can take advantage of the inherent security features of the Fabric Connect infrastructure. Each Fabric Connect virtualized service is unique and operates independently end-to-end. Traffic from Fabric Attach devices, users or applications is uniquely tagged to a virtualized service and isolated from other virtualized Fabric services. Furthermore, these virtualized services are used only when needed, and removed when not in service. This ensures a high degree of security for application/user traffic originating from Fabric Attach devices and traversing the Fabric Connect core.

Extreme Fabric Attach Supported Platforms

Fabric Attach is supported on the following Switch devices. No additional software license is required.

Extreme Networks Fabric Attach Supported Systems	
Switching Devices	**Required O/S**
X435 Series	EXOS 30.7
X440-G2 Series	EXOS 22.4 or later
X450-G2 Series	EXOS 22.4 or later
X460-G2 Series	EXOS 22.4 or later
X465 Series	EXOS 30.2
X620 Series	EXOS 22.4 or later
X670-G2 Series	EXOS 22.4 or later
X690 Series	EXOS 22.4 or later
X695 Series	EXOS 30.5
X870 Series	EXOS 22.4 or later
5320 Series	Switch Engine (EXOS) 31.6 or later
5420 Series	EXOS 31.3 or later
5520 Series	EXOS 31.1
ISW Series	Firmware version 1.01.03.0012
ERS 3600 Series	BOSS 6.0 or later
Defender Adapter (SA201)	SA3.01

The following table lists all Access Points (Campus or Cloud Managed) that are Fabric Attach enabled

Wireless Devices	On-premise managed		ExtremeCloud IQ Managed
	ExtremeCloud IQ Controller/(a.k.a Extreme Campus Controller)	WiNG	
AP505/510i	Yes	Yes	
AP510e	Yes	Yes	
AP560i-FCC	Yes	Yes	
AP410/460i	Yes	Yes	
AP410/460e	Yes	Yes	
AP310i/e	Yes	Yes	
AP360i/e	Yes	Yes	
AP302W	Yes	Yes	Yes[1]
AP360i/e	Yes	Yes	
AP460C	Yes	Yes	Yes[1]
AP505i	Yes	Yes	
AP310i/e	Yes	Yes	
AP510i/e	Yes	Yes	
AP560i	Yes	Yes	
AP560h	Yes	Yes	
AP410i	Yes	Yes	
AP410e	Yes	Yes	
AP460i	Yes	Yes	
AP460e	Yes	Yes	
AP410C	Yes	Yes	Yes[1]
AP305C/CX	Yes	Yes	Yes[1]
WiNGAP 8432		Yes	
WiNGAP 8533		Yes	
AP4000	Yes		Yes[1]
SA201	Yes		

[1] Minimum requirement: ExtremeCloud IQ Engine f/w release 10.4r3)