Cisco Catalyst Instant Access

Cisco® Catalyst® Instant Access simplifies the design and deployment of the traditional enterprise network architecture. It creates a single network touchpoint and single configuration across distribution and access-layer switches, fostering simplified operations and consistent features across distribution and access and ultimately helping reduce the total cost of ownership (TCO).

This document addresses some of the frequently asked questions.

Q. What are the different components of the Instant Access solution?

A. The Instant Access solution requires new Cisco Catalyst 6800ia Instant Access clients and Cisco Catalyst 6500 or 6800 Series Switches (Instant Access parents) with Supervisor Engine 2T and WS-X6904-40G/10G-2T line cards. It is recommended to have a pair of Cisco Catalyst 6500 or 6800 Series Switches configured in Virtual Switching System (VSS) mode as Instant Access parents, providing a high level of network redundancy. In networks where a pair of Cisco Catalyst 6500/6800 is not available, a single Cisco Catalyst 6500/6800 switch can also be used as Instant Access parent when configured with VSS enabled. Note: It is recommended to have a redundant supervisor engine in Cisco Catalyst 6500/6800 chassis with single-chassis Instant Access parent configuration.

Q. With what protocol and how exactly does the Instant Access client communicate with the Instant Access parent?

A. Instant Access client and parent communicate over four control protocols: Satellite Discovery Protocol (SDP), Satellite Registration Protocol (SRP), Satellite Configuration Protocol (SCP), and Inter Card Communication (ICC). These are at the heart of the Instant Access solution, enabling automatic provisioning and a single point of management for distribution and access layers. For more information, refer to the http://www.cisco.com/en/US/prod/collateral/switches/ps10902/ps715/ps13198/white_paper_c11-728265_ns1240_Networking_Solutions_White_Paper.html Instant Access white paper.

Q. How are new Instant Access clients provisioned? Must any configuration and image provisioning be done at the Instant Access client?

A. Instant Access clients are provisioned automatically when they are connected to an Instant Access parent. The Instant Access parent automatically does an image check on the newly connected Instant Access client. If the Instant Access client image is different from the image on the Instant Access parent, the Instant Access client is automatically upgraded with the newer Instant Access client image. Instant Access client uplinks are also configured automatically by the control protocols running between Instant Access parent and Instant Access client, thus making the access layer truly plug and play. Additionally, Instant Access client stack members are automatically provisioned when connected.

Q. Can the Instant Access solution and a traditional campus deployment coexist in the same Cisco Catalyst 6500/6800 VSS at distribution?

A. Yes, both traditional network deployments (that is, Cisco Catalyst 2k/3k/4k access switches and the Instant Access solution with Cisco Catalyst 6800ia) can coexist when connected to one Cisco Catalyst 6500/6800VSS at the distribution, using the existing Supervisor Engine 2T and WS-X6904-40G/10G line cards, thus providing true investment protection.

Q. Can some ports of the WS-X6904-40G/10G line card be used for the Instant Access solution and other ports used for traditional network trunk and or IP routed access?

A. Yes, the WS-6904-40G/10G line card can support Instant Access (fabric link) connectivity to a Cisco Catalyst 6800ia simultaneously with the traditional L2/L3 connectivity to Cisco Catalyst 2k/3k/4k switches. The line card can operate in 10G and 40Gmode simultaneously, with some port groups configured in 40Gbps mode and others in 10Gbps mode, enabling different solutions to coexist.

Q. Does the Cisco Catalyst 6800ia support Power over Ethernet (PoE) and Power over Ethernet Plus (PoE+)?

A. Yes, the Cisco Catalyst 6800ia supports PoE (15W) on all 48 10/100/1000 ports and PoE+ (30W) on any 24 of the 10/100/1000 ports. Refer to the Cisco Catalyst 6800ia data sheet for more details and a complete list of capabilities.

Q. What is the oversubscription on the Cisco Catalyst 6800ia?

A. Each Cisco Catalyst 6800ia supports 48 10/100/1000 host ports and two 10Gbps uplinks, offering a subscription ration of 2.4:1 (48/20) across the fex-fabric links to the Instant Access parent. All forwarding decisions are made on the Instant Access parent (Cisco Catalyst 6500/6800).

Q. Will there be local switching on the Instant Access Cisco Catalyst 6800ia?

A. The Cisco Catalyst 6800ia does not support any local switching. All the Layer 2 switching, Multiprotocol Label Switching (MPLS), and Layer 3 routing happens on the Instant Access parent. Because all the forwarding decisions are made on the Instant Access parent (Cisco Catalyst 6500/6800), we can now use the breadth of features available in these platforms all the way down the access layer. For more details about packet walks, refer to the Instant Access white paper.

Q. Will there be local multicast replication on the Instant Access Cisco Catalyst 6800ia?

A. The Cisco Catalyst 6800ia supports local replication of multicast flows to allow for a scalable, distributed multicast solution. While multicast lookups are performed on the Instant Access parent, the replication of the multicast flows destined for the host on that particular Instant Access client occurs locally on the Instant Access client.

Q. What is the code upgrade process for an Instant Access client?

A. The Instant Access solution supports Enhanced Fast Software Upgrade (eFSU). An additional CLI is introduced (*issurunversion [fex [range] <num> | all>]*) to allow upgrade of Instant Access clients during the eFSU process. It supports the capability to do rolling upgrade of all Instant Access clients or do it one at a time.

Q. What is the distance limitation between the IA parent and the IA client?

A. The fabric links are based on 10G links between the parent and the client. The only distance limitation is based on the optics used. For information about optics supported, refer to the next question.

Q. What optics are supported across Instant Access client and Instant Access parent 10Gbps fabric links?

A. The Cisco Catalyst 6800ia has two 10Gbps uplink ports, which support Short-Reach (SR), Long-Reach (LR), Long-Reach Multimode (LRM), and Extend-Reach (ER) Small Form-Factor Pluggable Plus (SFP+) optics across fabric links between Instant Access client and Instant Access parent. Additionally, the Twinax cables are supported. The Cisco-FET-10G is not supported in the Instant Access solution.

Q. How many Instant Access clients can be stacked, and what is the stacking bandwidth?

A. When first shipped, the Instant Access solution supports a stack of up to three Instant Access clients with bidirectional stack bandwidth of 80Gbps.

Q. Is the stacking module included with the Instant Access client?

A. Yes, the stacking module is included when ordering the Instant Access client.

Q. How many Instant Access clients can an Instant Access parent support?

A. When first shipped, the Instant Access parent can support up to 21 Instant Access clients distributed over a maximum of 12 Instant Access stack IDs (FEXIDs). Newer code versions will scale this number higher, so check the latest software release notes for these numbers.

Q. How many ports we can deploy in a single Instant Access domain?

A. When first shipped, an Instant Access parent can support up to 1008 ports across 21 Instant Access clients distributed over a maximum of 12 Instant Access stack IDs (FEXIDs).

Q. How many 10Gbps uplinks can be bundled in a Multichassis EtherChannel (MEC) from Instant Access client stack to Instant Access parent?

A. When first shipped, up to six 10Gbps uplinks can be bundled (two 10Gbps per stack member) from Instant Access client stack to Instant Access parent.

Q. Can a compact switch be connected to an Instant Access client?

A. Yes, a compact switch, or any other switch, can be connected to an Instant Access client host port. It is important to note that connected switches will be independently managed and not part of the Instant Access domain.

Q. Does Instant Access support MEC across Cisco Catalyst 6800ia host ports?

A. No. With the initial release of Cisco IOS® Software 15.1(2)SY, host port EtherChannel is not supported. However, it is planned for a subsequent release.

Q. Will Cisco Prime™ infrastructure support the Instant Access solution?

A. Yes, Cisco Prime™ infrastructure 2.0 provides partial support of Instant Access, including list of interfaces, viewing port configuration and status of interfaces, list of Instant Access clients, performance of interfaces, interfaces utilization graph, and many other day-two management capabilities. Instant Access client provisioning, image management, and VSS will be supported in future releases of Cisco Prime infrastructure.

Q. Is quality of service (QoS) supported over fabric links?

A. The Instant Access solution uses a trust differentiated services code point/class of service (DSCP/CoS) model between the Instant Access client and the Instant Access parent. The frame's original DSCP/CoS values are maintained, and the frame is queued for transmission over the fabric link according to its DSCP/CoS markings. The DSCP/CoS to queue table maps are configured by default in both the Instant Access client and Instant Access parent and cannot be changed. All control traffic is treated as high-priority traffic. For more details, refer to the Cisco Catalyst Instant Access white paper.

Q. What features are supported at Cisco Catalyst 6800ia client host ports?

A. The Instant Access solution brings Cisco Catalyst 6500/6800 features to the access layer. These include, but are not limited to, features such as:

- **Layer 2:** Advanced Virtual Private LAN service (A-VPLS), Multiprocotol Label Switching (MPLS), MPLS-VPN, Port Aggregation Protocol (PAgP), Link Layer Discovery Protocol (LLDP), Generic Routing Encapsulation (GRE)
- **Layer 3:** IPv4, IPv6, Easy Virtual Network (EVN), Virtual Routing and Forwarding (VRF-lite), multicast, medianet
- **Security:** 802.1x, Web-Auth, MAB, Security Group Tagging, Security Group Access List, VACL
- **Network monitoring:** Flexible NetFlow, SPAN/RSPAN/ERSPAN, Embedded Event Manager (EEM)

Q. Is a license required for Instant Access?

A. The Instant Access solution is supported on the IP Services feature set on the Cisco Catalyst 6500/6800 and does not require any additional licenses.

Q. Does the Cisco Catalyst 6800ia Instant Access client support Cisco StackPower®?

A. No, Cisco Catalyst 6800ia does not support Cisco StackPower.

Q. Can the 6908-10G line card be used for 10G fabric link termination at the Instant Access parent?

A. No, the 6908-10G does not support VNTAG capability in hardware to support the Instant Access solution.

Q. Can the existing Cisco Catalyst 2960S/2960X switches be used as Instant Access clients?

A. No, the existing Cisco Catalyst 2960S/2960X does not have hardware capability to support the Instant Access solution.

Q. Is the Cisco Catalyst Instant Access solution similar to the Cisco Nexus® FEX solution?

A. The Cisco Catalyst Instant Access solution is very similar to data center FEX with consistent CLI across the two solutions. The primary difference is that Instant Access is customized to meet the enterprise campus network needs with features more relevant to campus networks such as stacking, PoE/PoE+, cascading of switches, Security Group Tagging (SGT), MPLS at access, EVN, and so on.

Q. Does the Instant Access solution have restrictions on the routing protocols we can use?

A. All routing protocols supported on an Instant Access parent can be enabled on the Instant Access client host ports. Cisco Catalyst 6500/6800 with Supervisor 2T supports all routing protocols, and all of them are supported at the Instant Access client as well. No configuration is required at the Instant Access client to enable routing protocols at the Instant Access client, All the Layer 3 routing configuration and controls happen at the Instant Access parent (refer to the Instant Access white paper for more details), thereby further simplifying the deployment of L3 routed access with the Instant Access solution.

Q. What release number will support Instant Access?

A. Cisco IOS Software Release 15.1(2) SY and thereafter on the Cisco Catalyst 6500 and 6800 Series.

Q. Can the Instant Access client dual-home to two different 6904-10G line cards over fabric link EtherChannel?

A. Yes, the fabric links can span across multiple 6904-10G line cards providing line-card level redundancy at the Instant Access parent exists.

Q. Are there plans for an Instant Access client with dual power supplies to support IP phone deployments?

A. Yes, there are plans to have an available onboard redundant power supply for future Instant Access clients. Additionally, RPS2300 as external redundant power supply is supported on C6800 Instant Access clients.

Q. Can wireless access points be directly connected to an Instant Access client?

A. Yes, access points can be directly connected to Instant Access clients and powered by the PoE/PoE+ capabilities of the Instant Access client.

Q. How does the traffic flow between two hosts directly connected to Instant Access clients?

A. Host-to-host traffic flows through the Instant Access parent. The actual forwarding of packets happens at the distributed forwarding engine (DFC) in the 6904-10G line card at the Instant Access parent. For more details on packet walk, refer to the Instant Access white paper.

Q. Can the Instant Access client be configured to operate as a standalone switch in non-FEX mode?

A. No, Cisco Catalyst 6800ia can only operate in Instant Access client mode and does not support any local switching.

Q. What affect does the Instant Access control protocol between Instant Access parent and Instant Access client have on the fabric links?

A. The control protocol between Instant Access parent and Instant Access client is lightweight. Four control protocols run between Instant Access parent and Instant Access client:

- Satellite Discovery Protocol maintains the heartbeat connection between parent and client and is sent every 3 seconds, with a dead interval of 30 seconds.
- Satellite Registration Protocol is nonperiodic and is engaged only when the Instant Access client boots up to provision an Instant Access client.
- Satellite Control Protocol (SCP) maintains the host port counters and sequences numbers on transactional basis.
- IPC also provides transactional traffic for PoE and syslog and does not add any periodic traffic overhead.

For more details, refer to the Instant Access white paper.

Q. Can we support services modules together with the Instant Access solution?

A. Yes, services modules can be deployed in the Instant Access parent.

Q. What is the purpose of the Instant Access management and console ports?

A. The console and out-of-band management ports are not required for Instant Access client operations on a day-to-day basis because the client provisioning happens automatically. However, these ports allow TAC engineers an extra level of troubleshooting.

Q. What are the power supply rating and heat dissipation of C6800IA Instant Access clients?

A. The power supply rating for C6800IA-48FPD (POE+) is 100V-240V with current at 9A-4A, frequency at 50Hz-60Hz, with power consumption of 149W, 508 BTUs per hr. C6800IA-48TD (Non PoE) power rating is 100 - 240V with current 0.5A-1A, frequency at 50Hz-60Hz, with power consumption of 47W at 161 BTU/hr. For more information, refer to C6800IA hardware details.

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