Equinix Carrier Ethernet Exchange

GPF 5.0
Wednesday, April 14, 2010

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The MEF recommended: “Following its investigation ... The Committee determined that the best method of quickly facilitating multi-provider interconnection is through the encouragement of the creation of independent, for-profit Carrier Ethernet interconnect entities, which would implement Carrier Ethernet interconnection to MEF standards”
Interconnection Evolution - Exchanges

Equinix Internet Exchange
Peering the world’s Internet traffic, providing scale and performance, and adding on new capabilities (paid peering /settlement)

Equinix Carrier Ethernet Exchange
Interconnecting carrier private networks, starting with Ethernet services, then IP-VPN (One to Many E-NNI Solution)

Future: Equinix Mobility Exchange
Evolution of Data Exchanges, connecting mobility data traffic as the mobile handheld market expands
Equinix Carrier Ethernet Exchange Overview

- What is the ECEE?
  - Many-to-Many Private Layer 2 Ethernet NNI (ENNI) located in highly secure, resilient and carrier-neutral Equinix IBX locations
  - Transparent service translation platform based on Alcatel-Lucent switch fabric
  - Portal and Tools for carriers to qualify leads, buy and sell services, and monitor platform and service performance

- Our goals
  - Improve overall interconnection possibilities for carriers
  - Enable carrier revenue generation and operational savings
  - Adopt standards to accelerate interconnection and drive global Ethernet ecosystem/marketplace
Facilitating the Ethernet Ecosystem

**Buyer**
1. Qualify certified partners, search lit buildings & pricing

**Seller**
2. Respond to requests, update services & availability

3. Place Exchange Orders & Facilitate UNI/EVC Ordering

4. Provision Exchange Platform

5. Platform Performance Reporting

5. OAM Troubleshooting

Carrier A NOC → Equinix NOC → Carrier B NOC
ECEE Portal Overview

Basic Information

• List of Participating ECEE Carriers available by IBX Location
• ECEE Fabric Layout for each IBX
• Order Entry Forms
• Status Updates from ECEE Participants
• Equinix Support and Escalation Information
• ECEE Policy Database

Detailed Per-Carrier Information

• Footprints and Lit Building Lists
• Delivery Lead Time
• Network Specifications including supported topologies, VLAN frame types, MTU, OAM, etc.

Incident Reporting

• Create a New Incident Report
• View and Update the Status of an Existing Report
ECEE Fabric Overview

ECEE Equipment

- Alcatel-Lucent 7450 ESS12 and 7750 SR12 with IOM3

Physical Connections

- Gig-E and 10Gig-E ports
- Single, LAG, and MC-LAG

Logical Topology

- Supports many logical service connections on a existing physical connection
- Point-to-point Topology
  - Peering and Ethernet service connections between two carrier networks
- Multipoint Topology
  - Peering and Ethernet service connection among more than two carrier networks

Features

- VLAN Frame Type, ID, and Tag Protocol ID Translation
- Ingress and Egress Bandwidth Control
- QoS Ingress Classification and Egress Marking
- OAM support: 802.3ah (EFM). By 2010Q3: 802.1ag (CFM), Y.1731 (ITU CFM)
ECEE Fabric Behavior

**Service Frame**
Preserve the original end user data condition

**Carrier Frame**
- VLAN Frame Type Translation
- VLAN ID Translation
- TPID Translation

**CoS Frame**
Translate a service CoS variable & value between carrier network environments

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Service PDU and/or VLAN Frame

Carrier VLAN Frame (CoS + VID)

ECEE translate translate translate from the profile

ECEE translate translate translate from the profile

Service PDU and/or VLAN Frame

Carrier VLAN Frame (CoS + VID)
<table>
<thead>
<tr>
<th>Participant</th>
<th>Network Stats</th>
<th>Other Stats</th>
<th>Trial Status</th>
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<tbody>
<tr>
<td>AboveNet</td>
<td>Route Miles: 5000km+</td>
<td>2M+ fiber miles</td>
<td>Interviews: Underway</td>
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<td></td>
<td>Lit Buildings:</td>
<td>15 major markets</td>
<td>Testing: near completion</td>
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<td>EasyNet</td>
<td>Route Miles: 4.500km, UK</td>
<td>50 towns in UK</td>
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<td>Lit Buildings:</td>
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<td>Testing: Starting in SV</td>
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<td>Level 3</td>
<td>Route Miles: 27K km metro, 54K km IC</td>
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<td>Parent over 100K fiber buildings in India</td>
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<td>PCCW</td>
<td>Route Miles:</td>
<td>Parent has deep coverage in key AP cities</td>
<td>Interviews: Scheduling</td>
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<td>Lit Buildings: 84 Global POPs</td>
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<td>Hibernia</td>
<td>Route Miles: 24K km</td>
<td>Low latency across Atlantic</td>
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<td>Lit Buildings: 100 global POPs</td>
<td>Over 100 global POPs</td>
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<td>euNetworks</td>
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<td>Just Signed!</td>
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<tr>
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