Singapore Internet Exchange (SGIX)

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SGNOG 1 (2011)

Bringing The Internet World Closer

Agenda

1) Introduction to SGIX

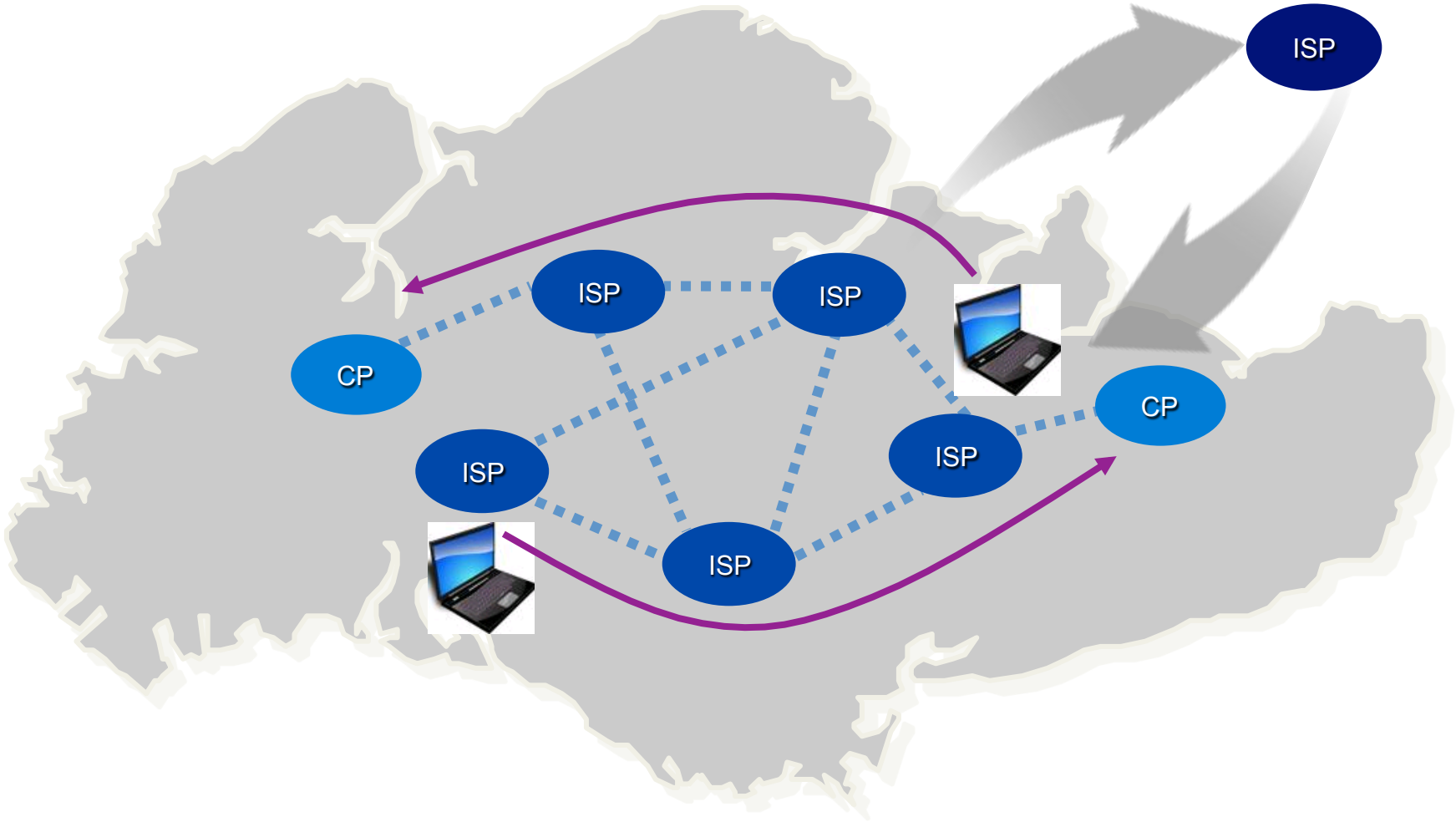
2) Technical Setup

3) Traffic profile

4) Services

5) In the pipeline

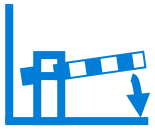
What we are trying to addressing



Introduction to SGIX

Open & Neutral

- Low barrier of entry to join as members
- Extensive peering opportunities with low membership requirement
- Non-intervention policy for bilateral peering arrangement



Not-for-Profit

- Ensure low cost of peering
- Port fees based on cost recovery basis allowing members to derive maximum value from IX

SGIX

Association-Based

- Company Limited by Guarantee
- Ensures fair treatment and contribution from all members
- Sustainability through self-regulation

Distributed IX

- Deployed in multiple physical location around Singapore
- Seamless traffic exchange across distributed IX infrastructure
- Redundancy option

1.Operationally ready in June 2010

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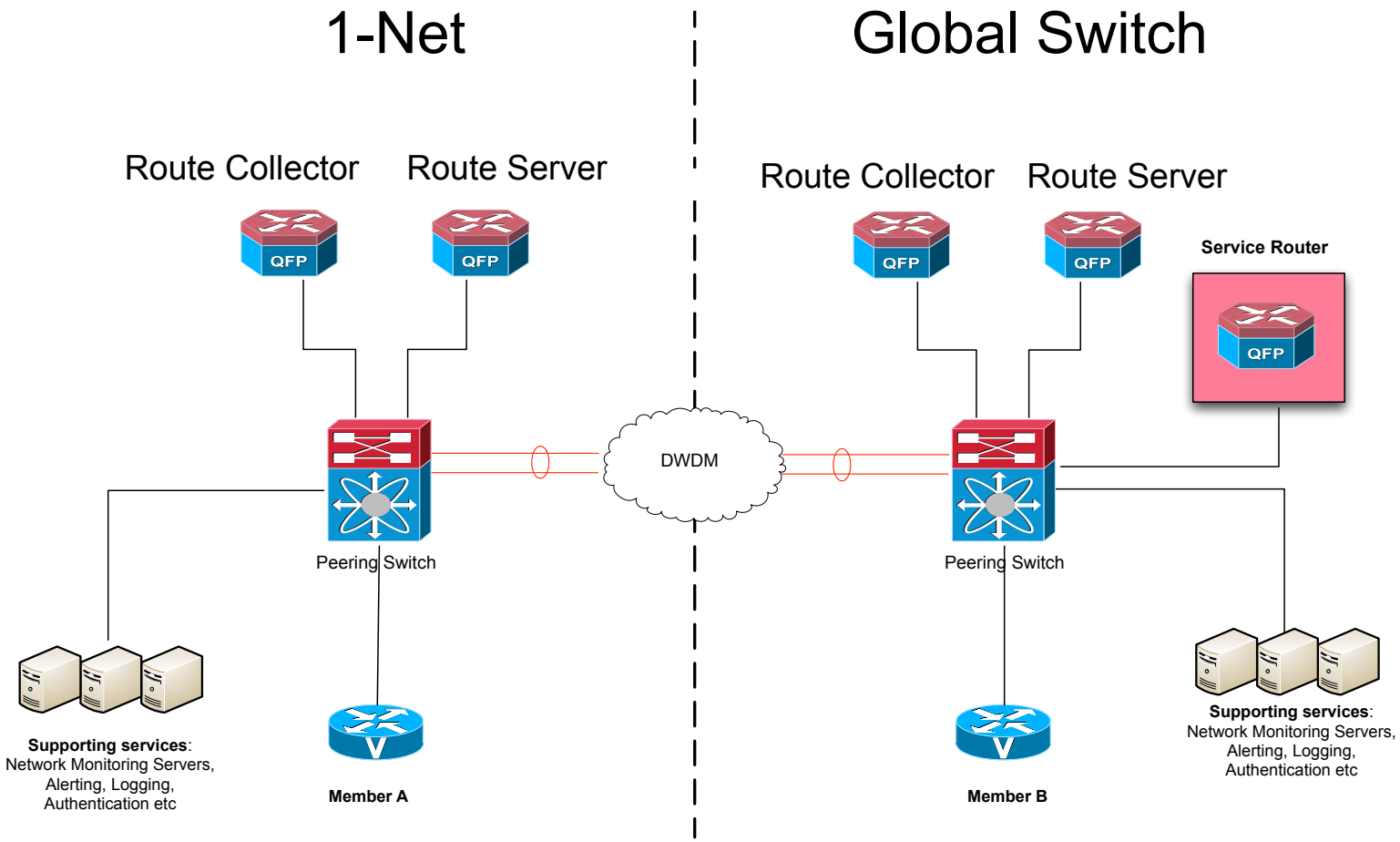
High-level Diagram



Peering Model (1/2)

1. Public Peering for IPv4 and IPv6 is done on different VLANs. Member's router interface need to do VLAN tagging.
2. We supports:
   a. Multi-lateral peering (MLP) through route-servers
   b. Bi-lateral peering (BLP) and
   c. Closed-group peering (on different VLANs)
3. Offering a non-penalty SLA (SLT) of 99.5% on monthly basis
4. Selling of transit services over peering fabric is discouraged.

Peering Model (2/2)

1. Route Servers/Collectors existing on both v4 and v6 public VLANs.

2. **Route Collectors (RC)** received-only mode. Use to collect route statistics. Members are encourage to peer with RC.

3. **Route Servers (RS)** in sender-receive-all mode. No BGP communities support yet.

Hardware

1. Cisco gears – ASR 1002 and Nexus 7010 (N7K)

2. N7K equipped with 48 x 10/100/100 ports (copper), 48 x 1G ports (optical) and 32 x 10G ports

3. 2 route-servers based on Quagga (0.99.17)

System Infrastructure

1. All servers are virtualized (VMWare ESXi)
   a. Benefits:
      i) Facilitate testing of new software and patches testing
      ii) Backup and recovery
2. RC, RS, Cacti, Radius and DNS servers are some of the services on VMs.
3. No performance issue encounter so far.

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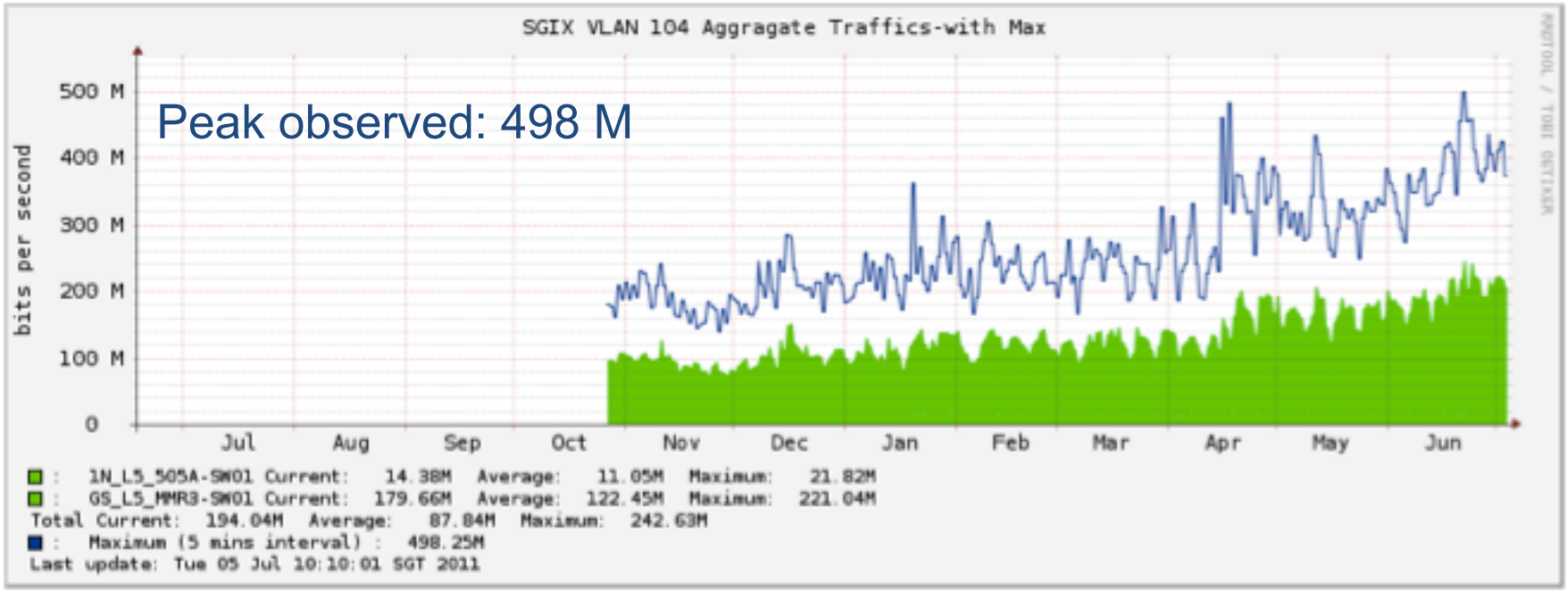
Traffic Profile (1/2)

1. Traffic is contributed mainly by a few Autonomous System Numbers (ASNs).
2. IPv6 traffic is negligible



As of early Jul '11

Traffic Profile (2/2)

Global Switch









1-Net



1. Number of prefixes observed on RC – 835
2. Number of ASN participating in RS - 9

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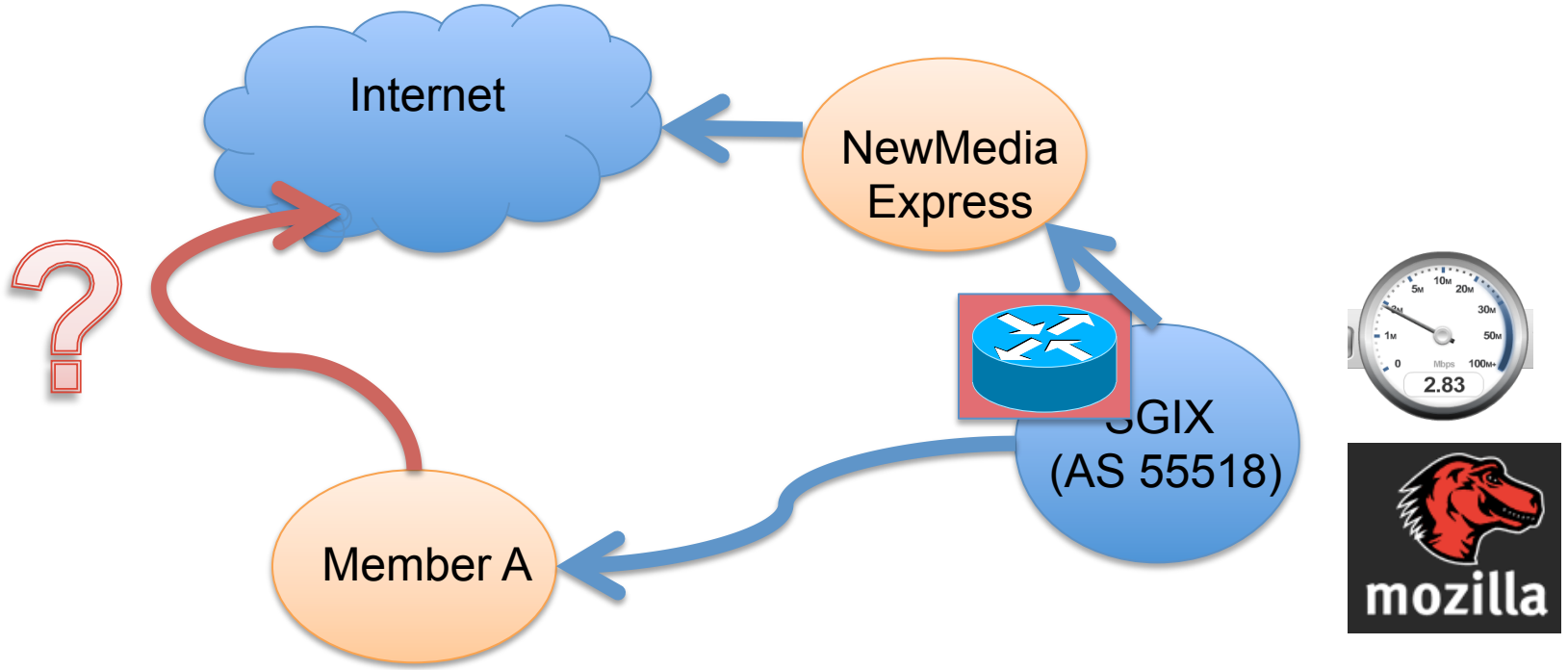
Services

1. Objective:
    a. Create additional value for members.
    b. Increase traffic in the IX.



services.sgix.sg/pub/mozilla.org/
Speedtest.sgix.sg

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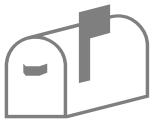
Future Plans

1. Updating RS
   a. Support MD5 on BGP sessions
   b. Support BGP communities
   c. Use BIRD/Cisco route-server for one of route servers
2. Implement Looking Glass
3. Introduce more services behind SGIX's ASN
4. Expanding the peering fabric

SGIX Contact Information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Thank you