

Spectrum Networks  
[www.spectrumnetworks.us](http://www.spectrumnetworks.us)  
[www.as11404.net](http://www.as11404.net) (NOC)

## SeattleIX – Spectrum Transport Network SIX Extension proposal

Pursuant to the SIX Switch interconnect policy at <http://www.seattleix.net/rules.htm>, this documentation shall serve as Spectrum Networks' notice of intent, pending SIX approval, to provide SeattleIX extension services throughout our Western Washington layer 2 transport network. Our transport network is currently available at the following datacenters: Westin, 1000 Denny Way, Fisher Plaza East, Sabey's Intergate West Building C, Intergate.East building 5, Bothell Data services, the Pittock Building in Portland, OR and Harbor Center (555/515 West Hastings in Vancouver, BC). All locations currently support both 1G and 10G connections.

While this will be a paid service, the goal is to provide cost-effective access to SeattleIX peering to companies who don't have a presence within the Westin Building. The underlying routes for the connections between switches are 10G waves that are built across multiple fiber routes for diversity to make the infrastructure as fault-tolerant as possible.

For simplicity we have broken this proposal down into several sections with each technical aspect handled separately. We have also included a diagram of the switch layout at the end of the text.

### 1. Administrative Access

Spectrum Networks LLC network operations staff will maintain and monitor switches and the underlying transport infrastructure for outages. In most cases we control the actual DWDM systems which carry the data. To protect access to the switches, sensible ACLs are in place on all management interfaces to protect the fabric from unauthorized access. Furthermore, all management is performed via SSH and none of the switches involved have globally routable IP addresses. We believe this multi-tiered approach provides a defense-in-depth that meets the Seattle IX standards for fabric security.

### 2. MAC policies

Spectrum Networks will enforce the same policy limits as the main SIX switch fabric. This will include BPDU guard and a maximum MAC-count of one MAC per port. Exceeding this will result in port shutdown.

Additionally, to further protect the SeattleIX fabric, Spectrum requests that the Seattle, IX maintain a max-mac limit on the uplink port to our network as well as the customary protections against spanning tree frames. We suggest that this number should start initially at 15 mac

addresses but that Spectrum NOC staff will provide notice to the SIX as more members connect via our transport network. This will provide an additional layer of MAC security for the exchange.

### 3. Hardware & Software

Spectrum Networks will be providing SeattleIX ports out of our Arista Networks switches, since these switches run very similar software to that of the SIX core, we expect to be able to honor the exact same provisions as are currently setup for 10G ports at the SeattleIX.

Within the Spectrum layer 2 network the Seattle IX unicast VLAN will be carried as a single VLAN to all sites, customer ports will be configured as access ports and will be limited to one mac address as defined in current SeattleIX operating procedure.

### 4. Interconnection with the SIX at the Westin Building

We are proposing a dedicated 10G interconnection with the SeattleIX at the Westin building. We are furthermore requesting that this port be configured as a LACP based link aggregated bundle to facilitate future addition of more ports as traffic grows without disruption. This will also allow us to spread the ports across multiple switches via MLAG as traffic grows to add redundancy to the interconnection. As part of this process, Spectrum will be paying the current 10G port fee of \$5,000 for the additional port as well as providing an SFP+ module.

### 5. Monitoring

Spectrum's NOC will monitor for error conditions on customer ports and will monitor the underlying infrastructure.

### 7. Repair

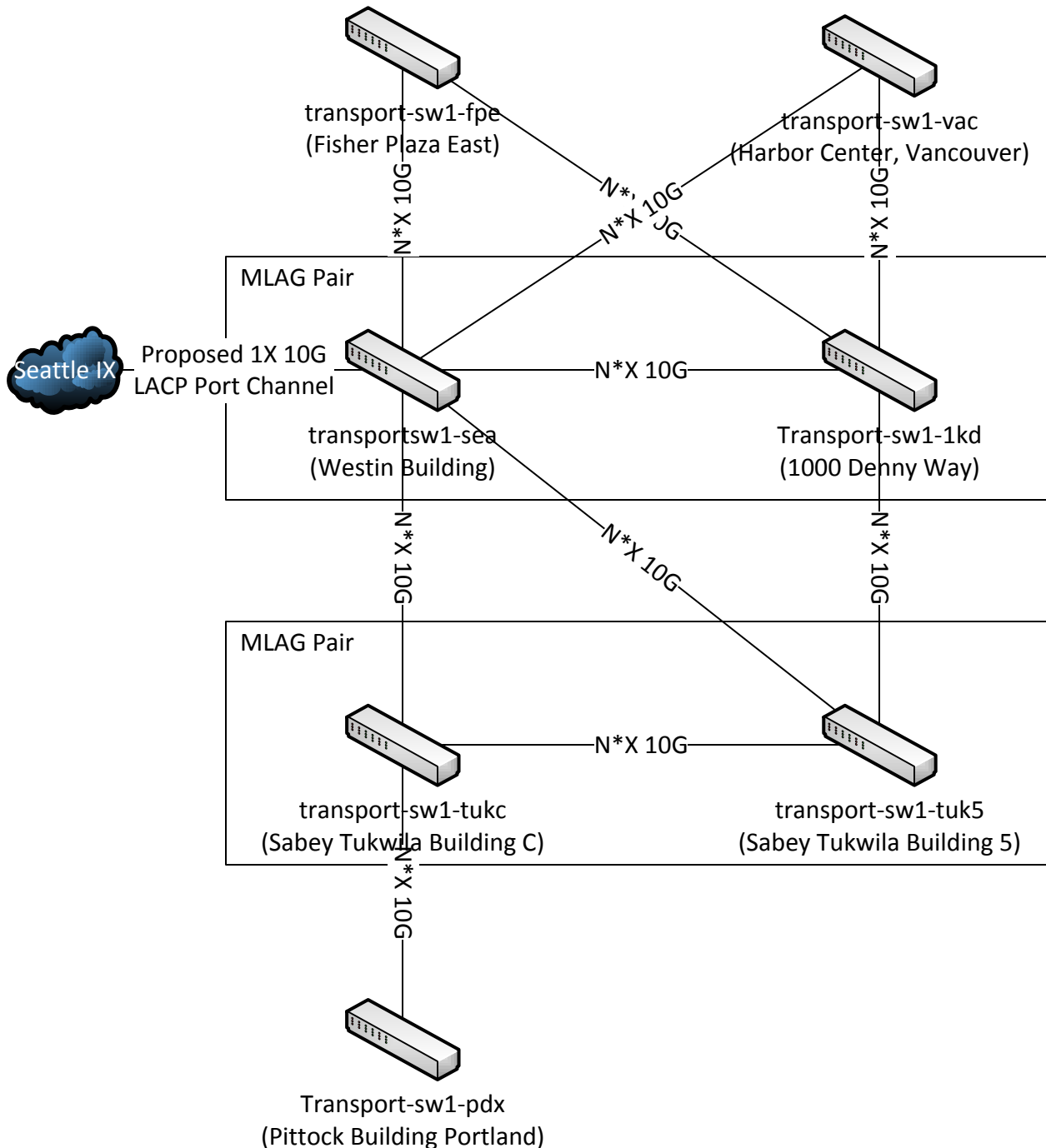
Spectrum Networks will be solely responsible for all circuit maintenance relating to this extension switch proposal. Spectrum Networks will make all reasonable efforts to maintain as high of an uptime as possible with sufficient prior notice for all service affecting events.

### 8. Turn-up

Spectrum Networks plans to provide interconnection requests immediately upon approval of this request. We have customers asking for this service today and several of these customers are using our transport services (on this network) to reach the SIX currently and would likely convert to the extension service once it becomes available.

# Seattle IX extension plan

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## Notes:

All backbone links are at least 1X 10G

Only Backbone sites shown. There are stub switches around the network with links to one or both core switches in any given MLAG pair.

The network does not use spanning tree, only arista MLAG protocol.

Spectrum is proposing a single member LACP link to allow for transparent capacity upgrades