



# TELUS/Juniper SDN Throwdown 2016

Group 7 - Green Lightning

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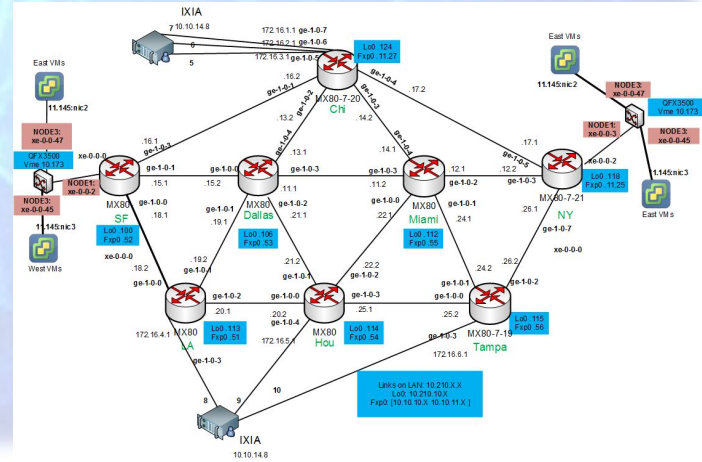
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# Interpretation of Problem

- We are creating a solution that maintains reliable connections and automates fault correction for volatile networks
- Our solution can:
  - Actively recognize status of link failure
  - Minimize resource usage
  - Fast response



# Target Customer

- Small & Medium-sized Enterprises (SMEs) of Internet Service Providers (ISP)
- Who wants the advantage of IPLC but needs to minimize their cost
- E.g. CDN providers, VOIP providers, internal networks for SMEs

# Stakeholders

- Internet Service Provider (ISP)
  - Sales staff
    - Provide a competitive Service Level Agreement (SLA) to customers
  - Technical staff
    - Understand features of the application
- Small & Medium-sized Enterprise (SME)
  - Enjoy an effective solution at minimal cost

# Current Features

- Automated switching of LSP
- Centralized configuration



# Decision Choices

- Polling VS **Redis** for Link Status
  - Actively recognize link failures
- **Static** VS Dynamic for Path Computation
  - Minimize active resource usage when switching lsp
  - Faster switching of Isps

```
link_event : {"status": "failed", "router_id": "10.210.10.112", "timestamp": "Mon:16:27:11",  
  "interface_address": "10.210.14.1", "interface_name": "ge-1/0/4", "router_name": "miami"}  
{u'interface_address': u'10.210.14.1',  
  u'interface_name': u'ge-1/0/4',  
  u'router_id': u'10.210.10.112',  
  u'router_name': u'miami',  
  u'status': u'failed',  
  u'timestamp': u'Mon:16:27:11'}
```



# Pros and Cons for customer

## Pros:

- Efficient solution with minimal cost
- Having a Redundant Path

## Cons:

- Not secure as IPLC
- May have congestion issues

# Pros and Cons for ISP

## Pros:

- Reduce headcount
- Lower OPEX
- Reduce human error
- Decrease network downtime
- Improve response time

(less RFO!)

## Cons:

- Specialized employee training
  - Understanding what the application can/cannot handle



# Future Improvements for Active Deployment

- GUI
  - Notification/ System Log (e.g. Email, SMS)
- Congestion avoidance
- Node failure recovery
- Multiple Link failure recovery

# Conclusion

- Our approach is an alternate solution for SMEs, who wants the advantage of IPLC but need to minimize their cost
- Our solution can:
  - Actively recognize status of link failure
  - Minimize resource usage
  - Fast response



**Demo**