

# I2RS BGP

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# I2RS BGP Use Case -1

- Troubleshooting and Analysis of BGP
  - Route reachability
  - Expected Exit Points
  - Route Hijacking
  - Route Stability
  - Reporting routes dropped
    - Policy based
    - Malformed, etc
  - Reporting Damped/Instable Routes
  - Protocol Statistics

# BGP Use Case - Applicability

- NOC troubleshooting
- Reactive and Proactive Reporting
- Increasing Network Stability

# I2RS BGP Analyser

- BGP Analyser Mode
  - On demand querying
  - Pub/Sub Model
  - Database based BGP Analysis
- Communication Channel
  - MRT
  - BMP
  - Programatic APIs

# BGP Analyser - Scale

- Statistics and Prefix events requires Analyser to scale to millions of prefixes and paths
  - Needs to be reactive to events
  - Needs to store events in database
- Scale directly proportional to current prefix churn \* BGP routers within a given network -  
~100 prefixes a sec

# I2RS BGP Use Case -2

- Performance Based Routing
  - Compute least delay exit paths
  - Compute least cost exit paths
  - Assure SLAs
  - Reduce Jitter and RTT of data plane
  - Spread utilization of external links
  - Enhance BGP TE

# BGP Use Case - Applicability

- ISP Networks
- Customer Networks

# I2RS BGP Performance Monitor

- BGP Monitor
  - Pub/Sub Model for routes
  - Data Plane statistics
- Communication Channel
  - Programatic APIs



# BGP Performance Monitor- Scale

- Monitor needs to scale to millions of prefixes and paths
  - Needs to be reactive to events
  - Needs to store events in database
- Scale directly proportional to number of prefixes and number of exit paths being optimized

# I2RS BGP Use Case - Netconf

- Centralize BGP Policy
- VPN Provisioning
- VPN Stitching
- BGP Configuration

# I2RS BGP Use Case - Undecided

- BGP Error Handling
- BGP Route Manipulation
- BGP Optimized Exit

# I2RS BGP Use Case - In BGP

- BGP Flowspec
- BGP RT Filter
- BGP Optimized Exit
- BGP Operational Messages

# BGP Based Service Chaining

- Use of a New BGP attribute – Nexthop Chain
- Each Nexthop corresponds to different nexthop in the chain
  - Control Plane based solution compared to data plane scaling
  - More Scalable compared to existing Source routing approaches
- Applies to any AFI/SAFI.
- Works Inter-AS/Inter Provider
- Facilitates incremental Deployment