NANOG61 BCOP WG

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NANOG 61, Bellevue, WA, 6-2-2014

What is BCOP

- The Best Current Operational Practice (BCOP) project will collect the best practices known within the operations community and capture those practices in a series of documents. These "living documents" are peer reviewed by technology experts who actually deploy and manage these environments. We believe the best documentation is when it is based on real-world implementations.
- This is a community project and is open to all to participate and get involved. We welcome your participation and look forward to working together to build better documentation for the entire community.
- All BCOPs are intended to be written for the majority case, with significant caveats called out. Think the 80/20 rule - we can not possibly cover EVERY corner case, but we do want to give a good overview of the Best Current Operational Practices.
- The majority of BCOPs should be generally applicable across the entire Internet. However, one of the primary purposes of having regional and local BCOP efforts is to facilitate the capture of significant geographical/cultural/environmental differences.

Why are we doing this?

- 100s of operator conferences and PPTs which are stale and without audio lead to challenges in finding current operational information.
- We strive to provide a single source of education material for operators across the respective regions and globe.
- This cleans up the Internet as a whole and assists new operators in executing using the best known methods.
- Result == Cleaner, Better Internet and Smarter Operators

Todays BCOP presentations

- Bill Armstrong – eBGP Configuration
- Shawn Hsiao (Next door) / Erik Muller – IXP Routes
- Mark Calkins – E-OAM
- Tony Tauber – BCOP Routing Resilience Manifesto

Recent News

- BCOP Committee formed and first meeting
  - Chris Grundemann (Chair)
  - Aaron Hughes (Co-Chair)
  - Mark Calkins
  - Yardiel Fuentes
  - Bill Armstrong
  - Erik Muller
  - Shawn Hsiao
  - Richard Jimmerson
  - Supporting: Betty Burke and Val Wittkop
- BCOP Template updated.
- Appeals list created

Appeals

http://bcop.nanog.org/index.php/Appeals

Appeals

List of Appeals				
Area of Practice	Appeal	Committee Owner	Shepherd	SME
EGPs	How to get off the Bogon IP list or get an incorrectly advertised BGP announcement fixed			
	BGP neighbor/configuration testing	Bill Armstrong	Bill Armstrong	Nina Bargisen, Umair Arshad, Bill Armstrong, Raghav Bhargava, Courtney Smith, Mannan Venkatesan, Brian Schleeper
	best practice for advertising peering fabric routes	Shawn Hsiao		
	Ingress filtering (bcp38/bcp84)			Roland Dobbins
	Traceroute BCOP? - bgp traceroute tool?			
IGPs	Basic IPv6 Troubleshooting (for help desk)			
	IPv6 Security and Network Security more generally			
	Route Server Filters at IXPs and 4-byte ASNs			
	End-user IP delegation/assignment practices			
	A list of logging requirements by country?			
	Best practice - dual stack DNS? - IPv6 Ops			
	What is BCP re De-Aggregation: strict filtering /48s out of /32 RIR minimums.			
	RFC 6879 on IPv6 Enterprise Network Renumbering Scenarios, Considerations, and Methods			
	RFC 6866 on Problem Statement for Renumbering IPv6 Hosts with Static Addresses in Enterprise Networks			
Ethernet	Ethernet OAM BCPs Please are there any yet???	Mark Calkins	Mark Calkins	Mark Calkins, Jean-François Lévesque
Class-of-Service	Current practices for AQM/packet congestion tuning BCOP?			
Network Information Processing	Network configuration archiving			
Security	DNS Amplification Attacks ((rfc5358 (preventing your recursive server from being used in amplification attacks)))			
	SPAM prevention			
	[preventing] ddos attacks			
	Best practice on TCP replies for ANY queries			
MPLS	InterCarrier Interconnect LSP Establishment			
	VPLS InterCarrier Connectivity			
Generalized	Fundamental questions of backbone design			
	Automatic abuse reports			
	Reverse DNS RFCs and Recommendations			
	prefix filtering per IRR - practices			
	Do you obfuscate email headers when reporting spam issues to clients?			
	In Over My Head -- What do I need to setup a tiny ISP?			
	How are operators using IRR?			
	how to not break EDNS0 with your middleware cruft			

Other regions

- RIPE – BCOP TF (Chair: Benno Overeinder / Co-Chair: Jan Zorz) bcop@ripe.net
  - http://www.ripe.net/ripe/groups/tf/best-current-operational-practices-task-force.
  - BCOP TF charter (discussion and approve charter text)
  - IPv6 troubleshooting for helpdesks
  - BGP configuration BCOP
  - DNSSEC operational practices for authoritative name servers
  - Update on the "Code of Conduct" Initiative
- PLNOG – BCOP WG started.
- I've heard rumors of others spinning up as well.
- BGP BCOP cross-regional working group volunteers

Coordination

- BCOP Coordination Meeting in Warsaw Poland (RIPE68)
  - Raising Participation
  - Language / Translation
  - Copyright / IPR
  - Minimum Requirements for a BCOP “BCOP-1”
  - Global Coordination
  - Version Control

eBGP Configuration BCOP

Bill Armstrong, NANOG 61, Bellevue, WA, 6-2-2014

BCOP Summary

- This BCOP aims to provide a singular, consistent view of industry standard eBGP interconnection methodologies
- This BCOP will also document pre and post turn-up validation practices and IRR Etiquette
- The primary focus of this BCOP is eBGP KNOW-HOW

BCOP Background

- Although eBGP peering sessions are turned up everyday the one you turn up tomorrow could be the other guy's first. This BCOP is needed to make sure the other guy knows what to expect.
- The creation of this BCOP was prompted after reading through a sordid 6 day cut-over that played out on the NANOG List
  - *Despite best laid plans by the OP the remote Peer was unable to stay up*
  - *Common expectations between peers were not set*
  - *The final resolution was only a max-prefix adjustment away*
- Doing things inconsistently CONSUMES TIME
  - No peering session should take 6 days to come up
  - No one should have to play Russian roulette when it comes to something as fundamental as a Peering turn up.

Draft BCOP Outline

- Basic Operation and Features\Functions
  - iBGP vs. eBGP
  - Path Selection refresher
  - Autonomous System Numbers
- Turning up eBGP Peering
  - Relationship Types
    - ISP-ISP(Peering\Transit)
    - ISP-CE
    - IXP
    - OTHER?
  - Pre-turn-up considerations
    - Expectation Coordination
    - Policy Stuff(Communities, Max-Prefix, Filtering, Etc)
  - Post Turn-up Considerations
    - Testing and Validation
    - IRR\PeeringDB

Participants

- Shepherd: Bill Armstrong
- Current SMEs:
  - Nina Bargisen
  - Brian Schleeper
  - Umair Arshad
  - Mannan Venkatesan
  - Courtney Smith
  - Raghav Bhargava
  - Bill Armstrong
- Other contributions from:
  - Karsten Thomann

A GLOBAL EFFORT

NANOG\RIPE\JANOG BGP Configuration BCOP world domination plan

- During the RIPE68 meeting, a BGP configuration BCOP proposal was presented by Francios Contat
- It also appears that there is a JANOG BGP Configuration BCOP effort underway.
- Because each is a fledgling initiative, each area will move toward individual drafts\ratification for the time being.
- Once these documents mature the hope is that through some inter-area coordination, a GRAND UNIFYING MULTI-LINGUAL BGP BCOP can be created…

Join Us!

- Are you an expert in eBGP Configuration and Testing?
- Do you have real-world experience with eBGP Policy 'Stuff' ?
- Are you interested in eBGP Configuration best Practices?

- Get involved!
  - Flexible time commitment
  - Contribute as much or as little as you can
  - The more voices we can include the better
  - PLEASE Email wrarmstrong@gmail.com to be included

Update “Public Peering Exchange” BCOP

Erik Muller and Shawn Hsiao, NANOG 61, Bellevue, WA, 06.02.2014

BCOP Summary

- This BCOP aims to update current “Public Peering Exchange" BCOP
  - Add IXP route handling advice
  - Remove information pertaining to the operation of an exchange into a separate document, and re-focus the document toward exchange participants
  - Other updates as needed

BCOP Background

- From a discussion thread in 01-15-2014 regarding handling of IXP routes, there are several approaches discussed and different opinions raised. The update to BCOP aims to document and analyze these approaches, and make recommendations

Draft BCOP Outline

- Add IXP route handling advice (SME needed!)
  - Analysis of several discussed approaches in the 1/15/14 NANOG mailing list thread:
    - All peering-fabric routes get next-hop-self on your peering router before going into iBGP
    - Redistribute into IGP
    - Configure iBGP and route them within that infrastructure. All the default routes go out through the POPs so iBGP would see packets destined for the peering fabric and route it that-a-way. No export.
    - Leave it "as is", and let the outbound traffic go out my upstreams and the inbound traffic come back through the peering fabric
  - BCOP recommendations

Draft BCOP Outline

- Other considerations, e.g,
  - Not accepting IXP routes from other AS
  - IXP policy on route distribution

Draft BCOP Outline

- Removing information pertaining to the operation of an exchange, and re-focus the document toward exchange participants

Participants

- Shepherd: Shawn Hsiao
- Current SMEs:

Join Us!

- Are you an expert in Public Exchange Peering?
- Do you have real-world experience with Public Exchange Peering as a participants?
- Are you interested in Public Exchange Peering?

- Get involved!
  - Flexible time commitment
  - Contribute as much or as little as you can
  - The more voices we can include the better
  - Email phsiao@tripadvisor.com to be included

Ethernet OAM BCOP

Mark Calkins, NANOG 61, Bellevue, WA, 06.02.2014

BCOP Summary

- This BCOP aims to provide insight into how Ethernet OAM is best deployed within todays service provider networks.
  - How to architect for successful future operation.
- The primary focus of this BCOP is to de-mystify EOAM protocols and practices.

Draft BCOP Outline

- Due to Ethernet OAM's depth this BCOP will likely be split into many individual BCOPs. Attaining volunteer SMEs will determine which BCOPs get legs in the near term.
  - Ethernet OAM BCOP – High level, What, When, Where
  - Y1731 and 802.1ag BCOP - One SME has volunteered, but more are welcomed.
    - How CFM functions, why it is good
    - Straw-man architecture for protocol's application
    - Best practices for fault monitoring, path discovery, and fault isolation
    - Best practices for action profiles
    - Frame delay measurements
      - One way
      - Two way

Draft BCOP Outline

- 802.3ah BCOP – SMEs needed
  - How LFM functions, why it is good
  - Straw-man architecture for protocol's application
  - Best practices for LFM's critical and non-critical events
  - Best practices for action profiles
  - Volunteer SME will help define further scope

Draft BCOP Outline

- G8032 BCOP – SMEs needed
  - How ERPS functions, why it is good
  - Straw-man architecture for protocol's application
  - Best practices for ERPS
  - Volunteer SME will help define further scope

Participants

- Shepherd: Mark Calkins
- Current SMEs:
  - Mark Calkins
  - Jean-François Lévesque

Join Us!

- Are you an expert in Ethernet OAM?
- Do you have real-world experience with Ethernet OAM?
- Are you interested in getting your name attached to public facing documentation?

- Get involved!
  - Flexible time commitment
  - Contribute as much or as little as you can
  - The more voices we can include the better
  - Email mark.calkins@gmail.com to be included

Routing Resilience Manifesto

- Tony Tauber – BCOP Routing Resilience Manifesto

- .. Open PDF for Tony
  - https://ripe68.ripe.net/presentations/201-20140515-bcop-manifesto-update.pdf

Open Mic

- NANOG:
  - http://bcop.nanog.org/
- RIPE:
  - http://www.ripe.net/ripe/groups/tf/bcop
- Global Coordination:
  - https://elists.isoc.org/mailman/listinfo/bcop-gc
- General Questions: bcop-support@mailman.nanog.org