



# Paolo Lucente

## BMP – BGP Monitoring Protocol



# BGP

Pretty ubiquitous protocol:

- Internet interconnections
- L2 / L3 VPNs
- DC
- ...



And you are running it!



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# BGP

*“If you run it, it’s good idea to monitor it!”*

Anonymous ancient Network Philosopher



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# BGP

Scales great  
Hides better



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# BGP monitoring before BMP

Adj-Rib-In -> Screenscraping / black magics

Adj-Rib-Out -> Screenscraping / black magics

Loc-RIB -> BGP Peering (with ADD-PATH)



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# BMP

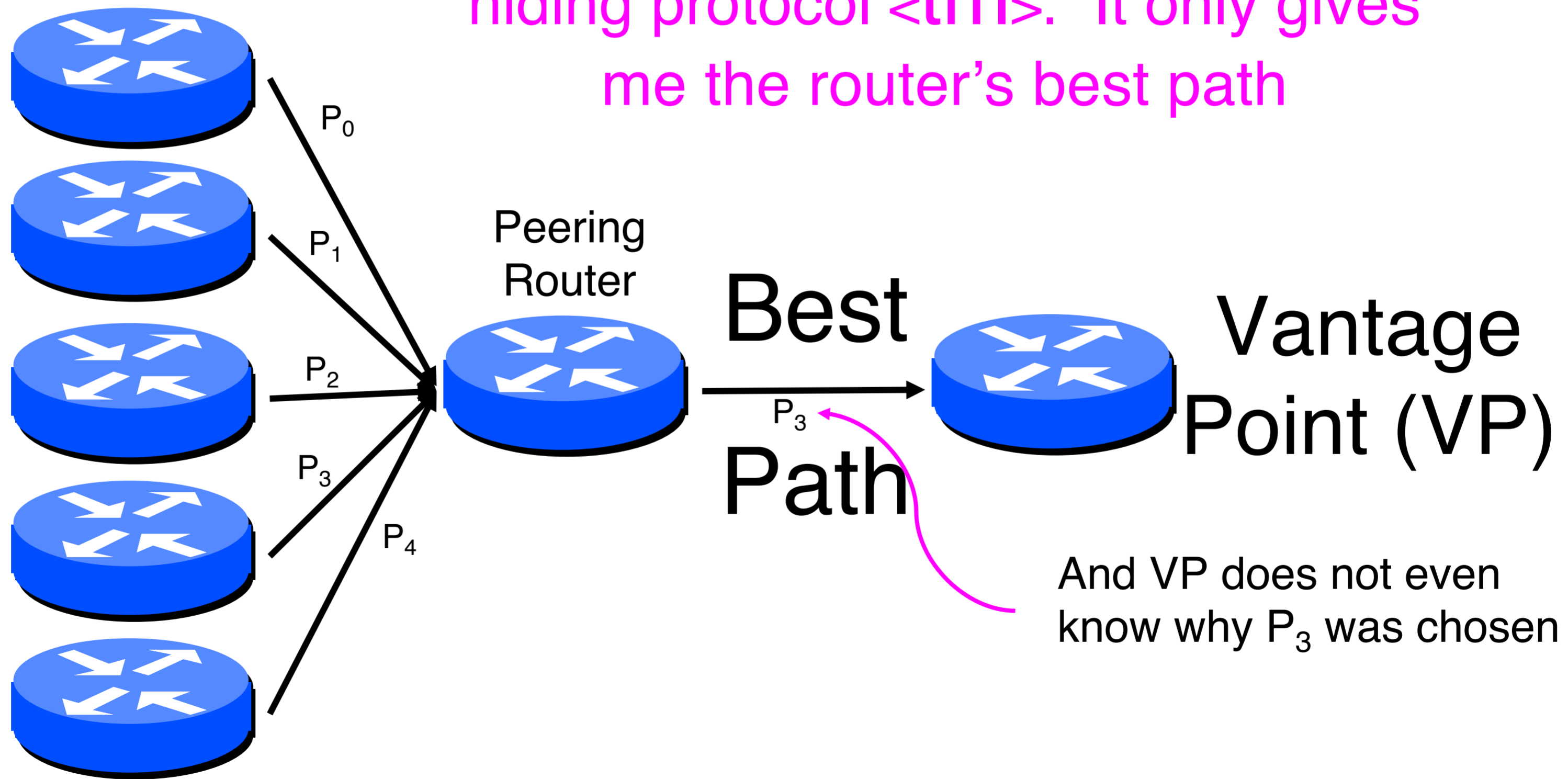
- BGP Monitoring Protocol
- RFC 7854:
  - first draft in 2008, sparse work until 2012;
  - stall between 2012 and 2015;
  - real traction kicks in: 10 drafts between 2015 and 2016;
  - RFC award in Jun 2016
- Uncomplicated protocol design
- Great effort but ..
  - .. industry evolved all these years
  - increased hunger for data



A DevOps guy during lunch break

# Traditional BGP monitoring

## Peers



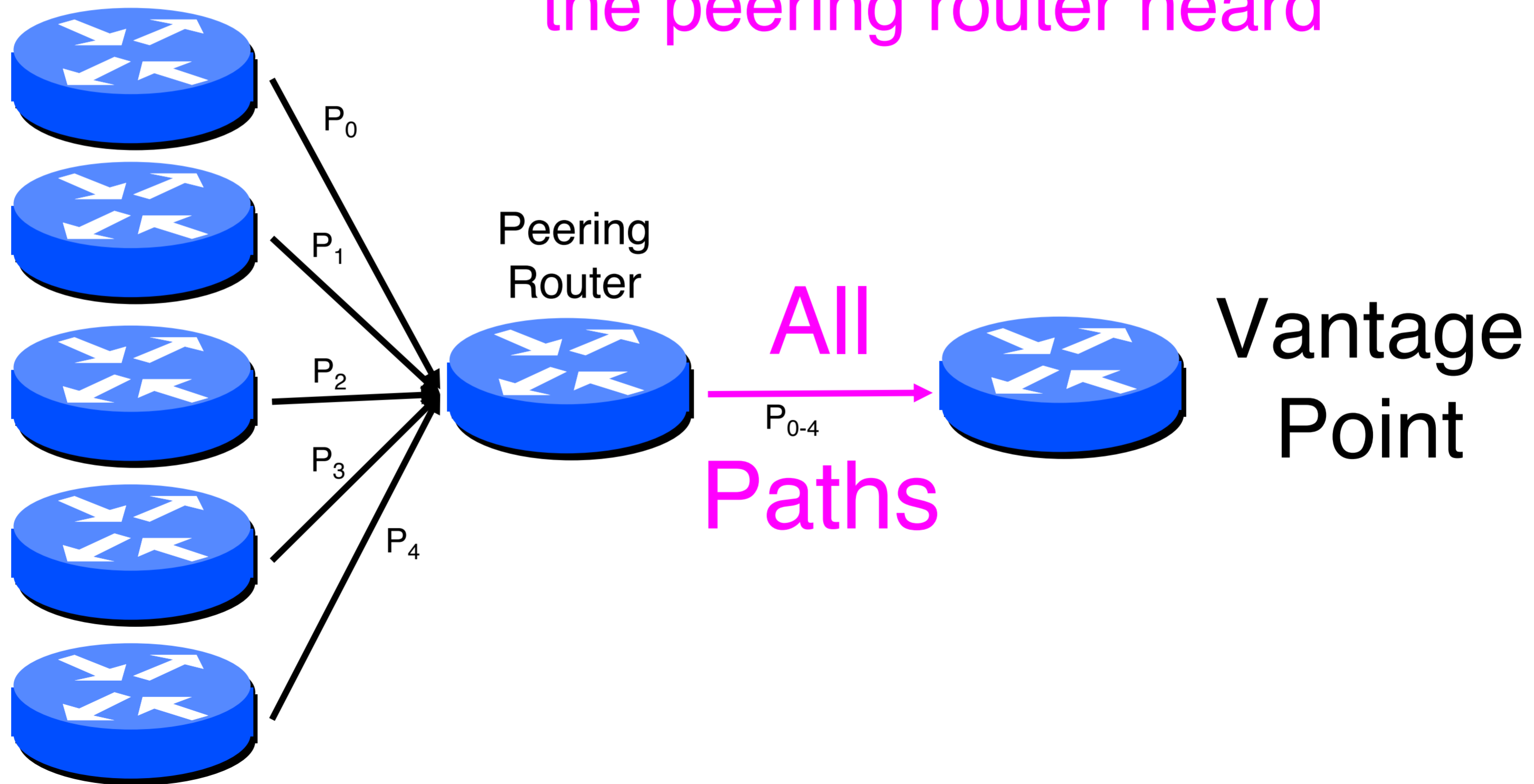
BGP is the world's best information hiding protocol <tm>. It only gives me the router's best path

And VP does not even know why P<sub>3</sub> was chosen

# BGP monitoring with BMP

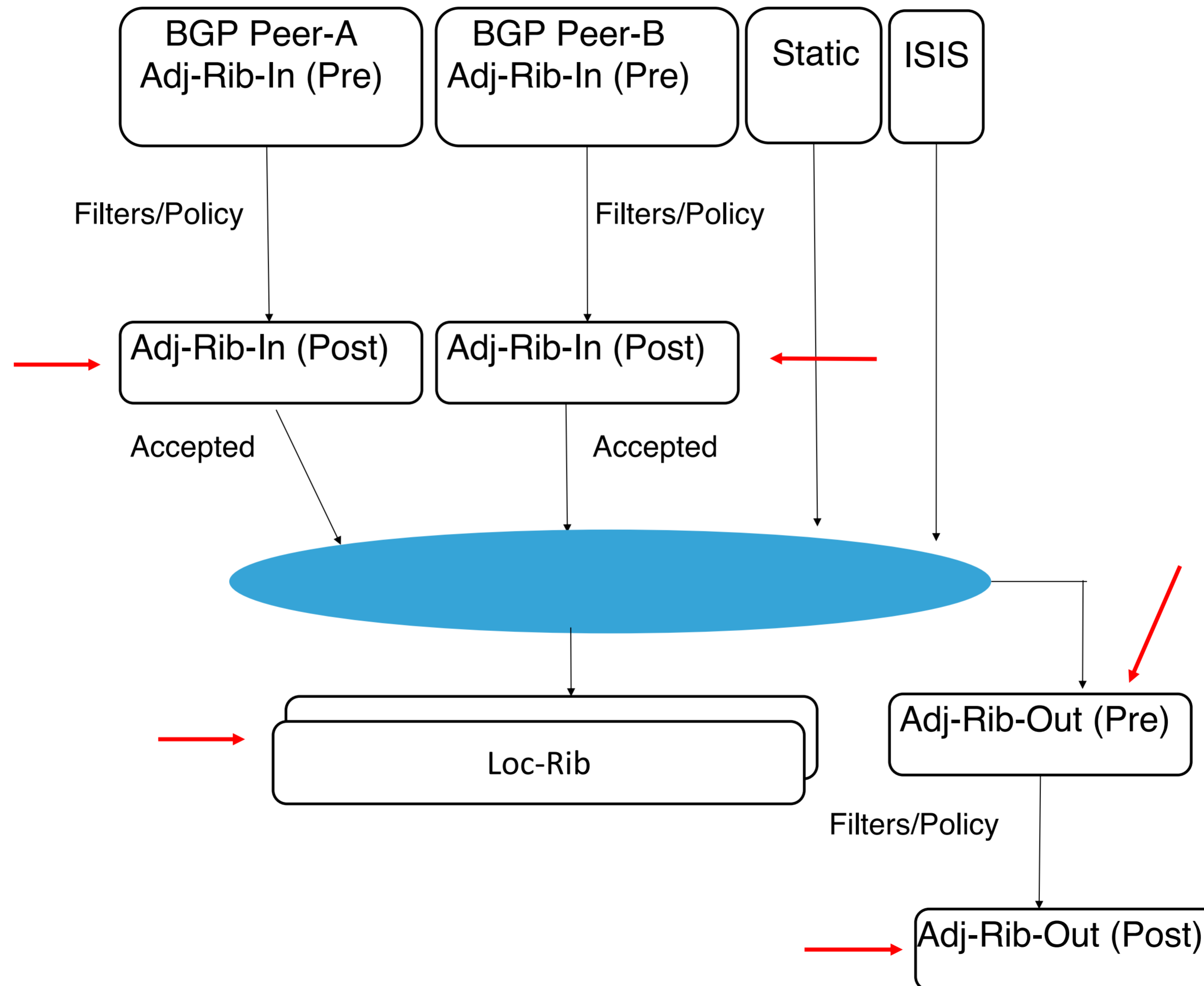
Peers

With BMP, I learn all the paths  
the peering router heard





# Standardized BMP vantage points



# BMP message types

- o Message Type (1 byte): This identifies the type of the BMP message. A BMP implementation MUST ignore unrecognized message types upon receipt.
  - \* Type = 0: Route Monitoring
  - \* Type = 1: Statistics Report
  - \* Type = 2: Peer Down Notification
  - \* Type = 3: Peer Up Notification
  - \* Type = 4: Initiation Message
  - \* Type = 5: Termination Message
  - \* Type = 6: Route Mirroring Message



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# Ongoing work with BMP



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# Extend BMP to include optional TLVs for all messages

Workgroup: Global Routing Operations  
Internet-Draft: draft-ietf-grow-bmp-tlv-10  
Updates: [7854](#) (if approved)  
Published: 8 November 2022  
Intended Status: Standards Track  
Expires: 12 May 2023

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## TLV support for BMP Route Monitoring and Peer Down Messages

### Abstract

Most of the message types defined by the BGP Monitoring Protocol (BMP) make provision for data in TLV format. However, Route Monitoring messages (which provide a snapshot of the monitored Routing Information Base) and Peer Down messages (which indicate that a peering session was terminated) do not. Supporting (optional) data in TLV format across all BMP message types allows for a homogeneous and extensible surface that would be useful for the most different use-cases that need to convey additional data to a BMP station. While it is not intended for this document to cover any specific utilization scenario, it defines a simple way to support TLV data in all message types.

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# Extend BMP to include enterprise bit

Global Routing Operations  
Internet-Draft  
Updates: 7854 (if approved)  
Intended status: Standards Track  
Expires: 12 May 2023

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8 November 2022

Support for Enterprise-specific TLVs in the BGP Monitoring Protocol  
draft-ietf-grow-bmp-tlv-ebit-01

## Abstract

Message types defined by the BGP Monitoring Protocol (BMP) do provision for data in TLV – Type, Length, Value – format, either in the shape of a TLV message body, ie. Route Mirroring and Stats Reports, or optional TLVs at the end of a BMP message, ie. Peer Up and Peer Down. However the space for Type value is unique and governed by IANA. To allow the usage of vendor-specific TLVs, a mechanism to define per-vendor Type values is required. In this document we introduce an Enterprise Bit, or E-bit, for such purpose.

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# Path Marking TLV

Network Working Group  
Internet-Draft  
Intended status: Standards Track  
Expires: 22 April 2023

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19 October 2022

BMP Extension for Path Status TLV  
draft-cppy-grow-bmp-path-marking-tlv-11

## Abstract

The BGP Monitoring Protocol (BMP) provides an interface for obtaining BGP Path information. BGP Path Information is conveyed within BMP Route Monitoring (RM) messages. This document proposes an extension to BMP to convey the status of a path after being processed by the BGP process. This extension makes use of the TLV mechanisms described in draft-ietf-grow-bmp-tlv [I-D.ietf-grow-bmp-tlv] and draft-ietf-grow-bmp-tlv-ebit [I-D.ietf-grow-bmp-tlv-ebit].

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# REL – Route Event Logging in BMP

Global Routing Operations  
Internet-Draft  
Updates: 7854 (if approved)  
Intended status: Standards Track  
Expires: 14 May 2023

P. Lucente  
NTT  
10 November 2022

Logging of routing events in BGP Monitoring Protocol (BMP)  
draft-lucente-grow-bmp-rel-00

## Abstract

The BGP Monitoring Protocol (BMP) does provision for BGP session event logging (Peer Up, Peer Down), state synchronization (Route Monitoring), debugging (Route Mirroring) and Statistics messages, among the others. This document defines a new Route Event Logging (REL) message type for BMP with the aim of covering use-cases with affinity to alerting, reporting and on-change analysis.

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# BMP Yang Model

GROW  
Internet-Draft  
Intended status: Standards Track  
Expires: 29 May 2023

C. Cardona  
P. Lucente  
NTT  
T. Graf  
Swisscom  
B. Claise  
Huawei  
25 November 2022

BMP YANG Module  
draft-ietf-grow-bmp-yang-00

## Abstract

This document proposes a YANG module for BMP (BGP Monitoring Protocol) configuration and monitoring. A complementary RPC triggers a refresh of the session of a BMP station.

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Thanks! Questions?



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