draft-lucente-grow-bmp-offline-0{0,1}

GROW @ IETF 122, March 2025, Bangkok, Thailand

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bmp-offline-00 ⟶ 01

- **Front matter changes:**
  - Colin Petrie joined as co-author
  - Retitled the document from
    Making BMP fruible offline
    to
    BMP State Summaries

-00 recap

- **Motivation:**
  - BMP (and BGP) sessions are long-lived, but the start is crucial to process the stream;
  - Inconvenient when e.g.
    - Storing BMP messages in $n-minute interval buckets,
    - Disseminating BMP messages on a bus with a certain retention
    - Tcpdump'ing an ongoing BMP session
- **-00 approach:**
  - Introduce a new Peer Summary message type

-00 PeerSummary wireformat:

```
 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1
+-+-+-+-+-+-+-+-+
|    Version    |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|                        Message Length                         |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|Msg Type = TBD1|
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|      Type = TBD2 (2 octets)   |     Length (2 octets)         |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
~   Value = Per-Peer Header + Peer Up Notification (variable)   ~
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|      Type = TBD2 (2 octets)   |     Length (2 octets)         |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
~   Value = Per-Peer Header + Peer Up Notification (variable)   ~
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
~                       Peer TLV 3 .. N                         ~
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
```

Discussion in Dublin

Q: Who generates these messages?

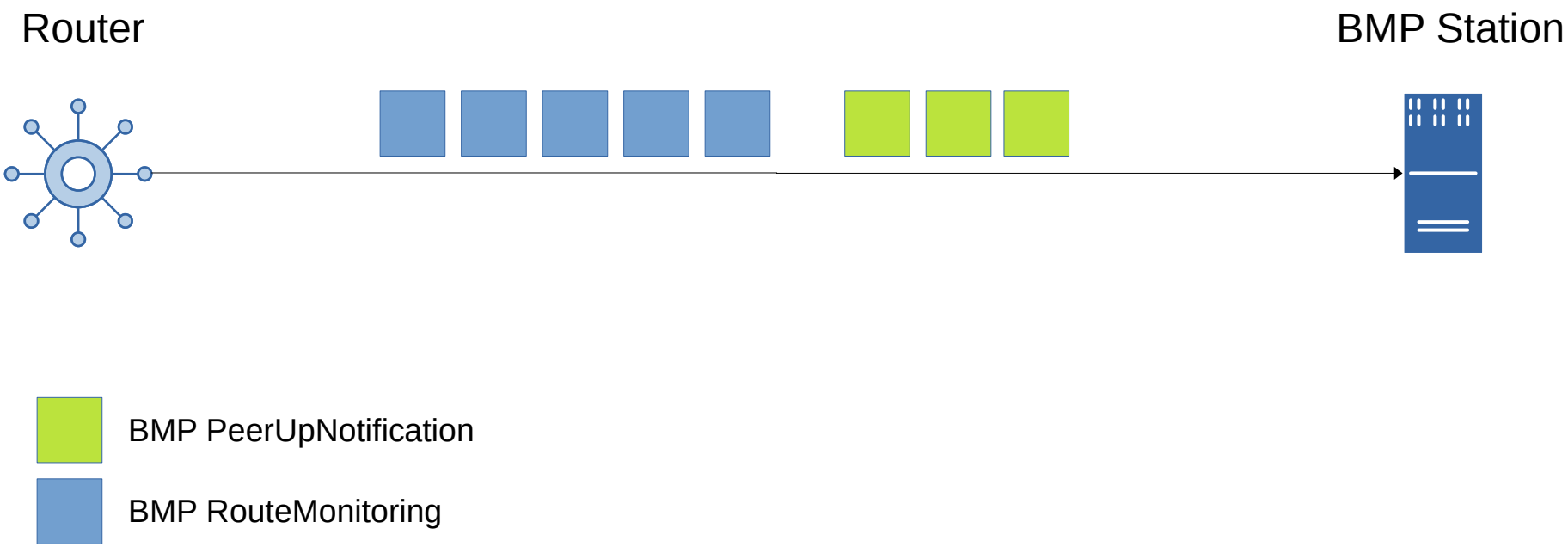
- -00 text: only the station
- Feedback: Allowing both exporter and station side seems to be preferred by some people

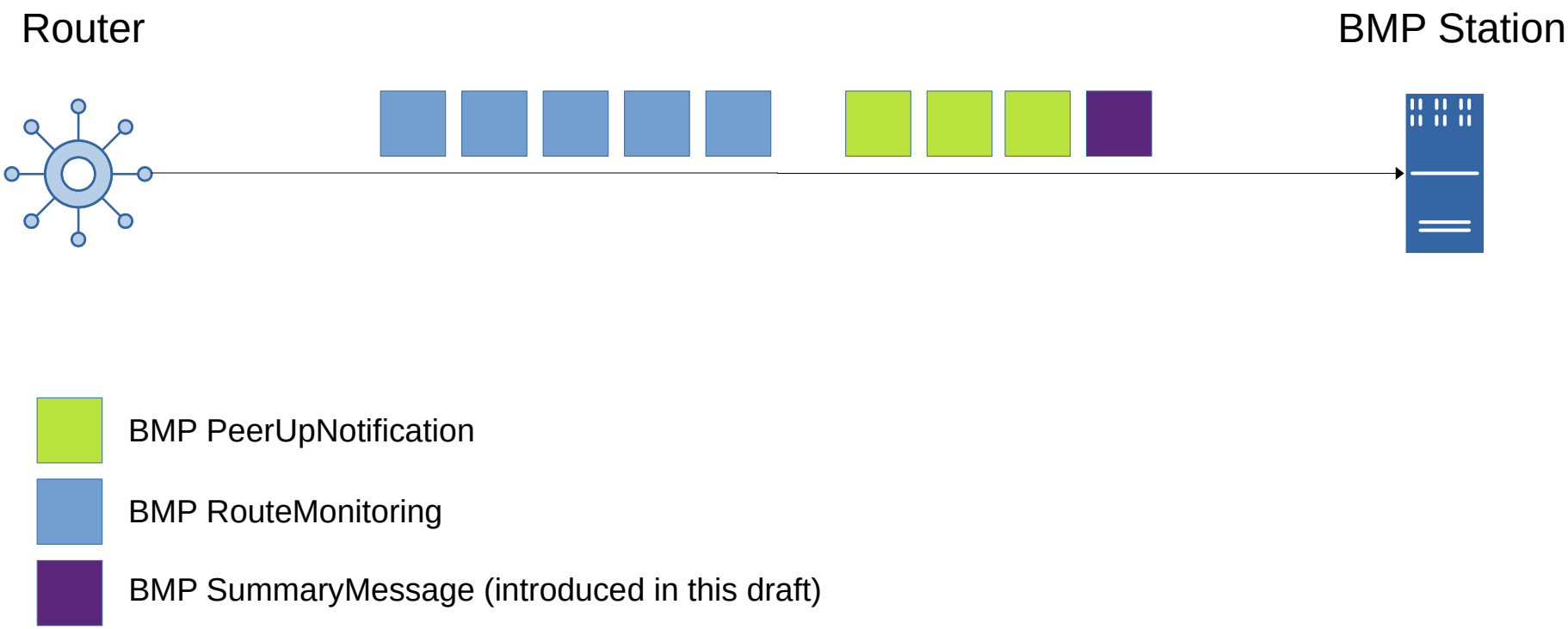
Author discussion after Dublin

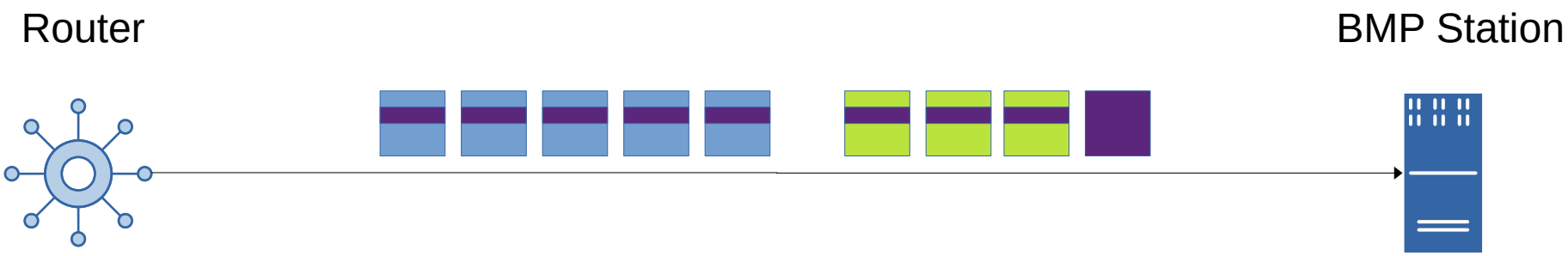
- **Only the Peer Summary is insufficient**
  - -00 text only describes a PeerSummary message
  - In addition to the session information, the state/content of the RIBs is needed to paint the full and correct picture
  - *Should we introduce a 'RIB Summary' message?*

Rethinking the -00 approach

- **Simply feels wrong:**
  - Requires two new message types,
  - resulting in very large PDUs,
  - to do something we already do (initial sync).
- **-01 approach:**
  - Instead, introduce the State Summary message type;
  - Introduce the Summary Id TLV type;
  - Using that TLV, tie one State Summary to a bunch of Peer Up Notification and Route Monitoring messages


Router
BMP Station
BMP PeerUpNotification
BMP RouteMonitoring


Router
BMP Station
BMP PeerUpNotification
BMP RouteMonitoring
BMP SummaryMessage (introduced in this draft)



BMP PeerUpNotification

BMP RouteMonitoring

BMP SummaryMessage (introduced in this draft)

BMP Summary Id TLV (introduced in this draft)

The -01 approach: State Summaries

- **Logical concept of a Summary consisting of**
  - 1 State Summary, $N Peer Up, $M Route Monitoring messages, tied together via Summary Id TLV.
- **Pros:**
  - Only one new (simple) message type introduced
  - In-band meta-data (time of export, vendor, version,)
  - Extensible: add any other BMP message type by attaching the Summary Id TLV to it
  - Almost identical to initial sync as we know it today

The -01 opportunities/ discussion points:

- **Change initial sync to a Summary?**
  - Enables distinguishing ‘live’ messages (e.g. incoming BGP Updates resulting in Route Monitoring messages) interleaved in an ongoing sync
- **Signalling ‘End of Summary’:**
  - RouteMonitoring messages with EoR?
  - Closing State Summary message with a specific TLV?
    - Enables aborting a summary/sync and provide a reason
    - Allows to include a manifest of what has been sent/stored, enabling the station/consumer to verify completeness etc.

Next steps:

- **Questions:**
  - Is this indeed a (better) way forward?
  - Is this feasible on the exporting side?
    - First feedback (thank you Prasad!):
      - syncing the RIB contents is expensive
      - Perhaps those should be optional in a Summary (which would be a trivial exercise with the TLV-based approach in -01)
      - Clarify and motivate the benefits of doing this from the exporter

- **nextnext steps: Summary Id format, meta-data TLVs**
    - Some first great ideas already (thank you Maxence!)

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