

# BIER P2MP mLDP Signaling

H.Bidgoli (Nokia)

J.Kotalwar (Nokia)

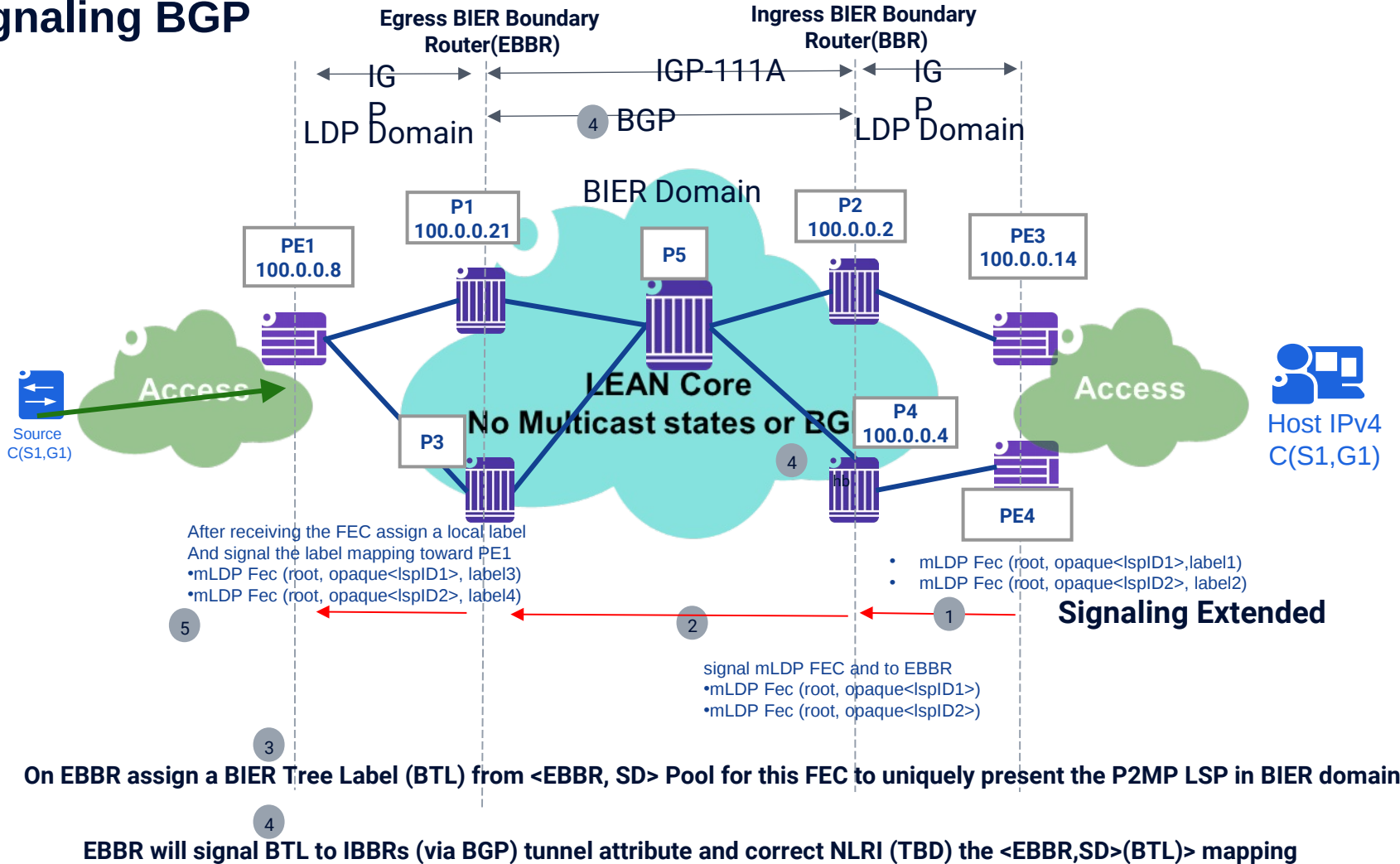
Andrew Dolganow (Nokia)

July 2018

# The background

- **Extending draft-bier-ietf-pim-signaling to mLDP**
- **Problem:**
  - **introduce BIER to a desired segment of the network with “minimal or no disruption and operational impact” to the mLDP domains.**
  - **Simplify operation by eliminating legacy multicast control plane protocols in BIER domain. With SR and BIER no more MPLS control plane.**
  - **Gradual upgrade to BIER starting with desired segment and eventually upgrading the entire network to BIER aware hardware.**
- **Identifying and stitching a P2MP LSP through a BIER core.**
  - **This draft is not proposing LDP neighboring through a BIER core**
  - **Much like PIM Signaling through BIER**

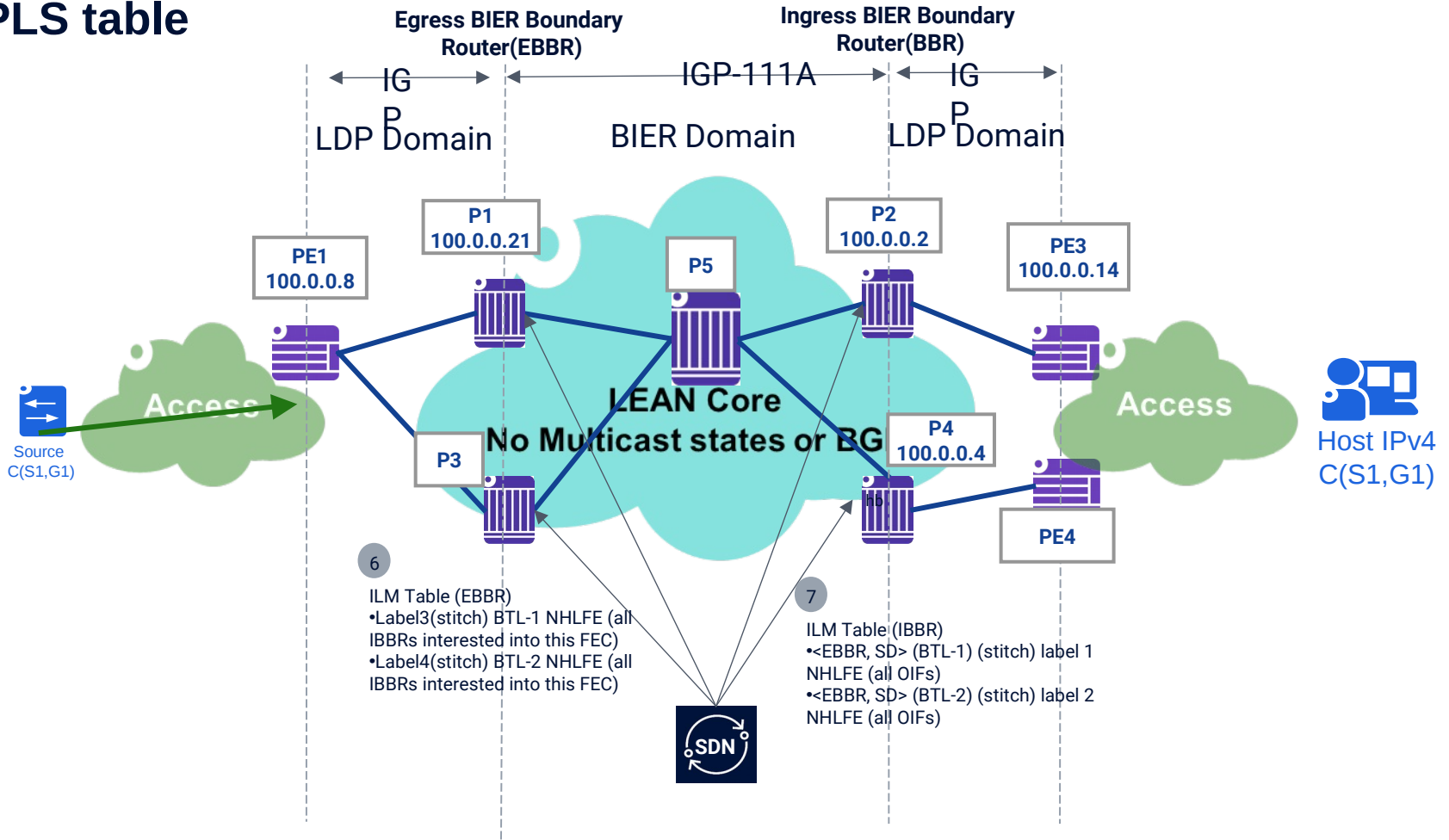
# Signaling BGP



# Control Plane

- **Control plane**
  - **LDP signaling is terminated at BIER Boundary Routers (BBRs)**
  - **BBRs will maintain LDP adjacency toward the mLDP domain**
  - **On a arriving label mapping/withdraw from LDP domain, if IBBR determines the Root of the FEC resides on the other side of BIER Domain, it will signal the FEC and the FEC action to the EBBR, as an example <FEC, label mapping> or <FEC, label withdraw>**
  - **The EBBR can be found with using the outer root of the FEC and the procedure explained in ietf-draft-bier-pim-signaling**
  - **The EBBR will receive the bier signaling packet including the <FEC, label action>**
    - **The EBBR will assign a BIER Domain TREE Label (BTL) to identify the P2MP LSP uniquely in the BIER domain, as an example if there is no BTL assigned to this label yet.**
    - **For scaling considerations this BTL can be assigned per <EBBR PrefixID,SD> label pool.**
    - **The EBBR will have a MP-BGP adjacency to IBBR(s) and will signal the <<EBBR,SD> (BTL)> with correct (New) PTA and NLRI**
  - **The Egress BBR keeps track of all IBBRs that are interested in this specific FEC. It creates a tree with OIF all the IBBRs signaling this FEC**
  - **The Egress BBR will also generate a new mLDP label for the FEC and forward the label mapping/withdraw toward the Root in LDP domain.**

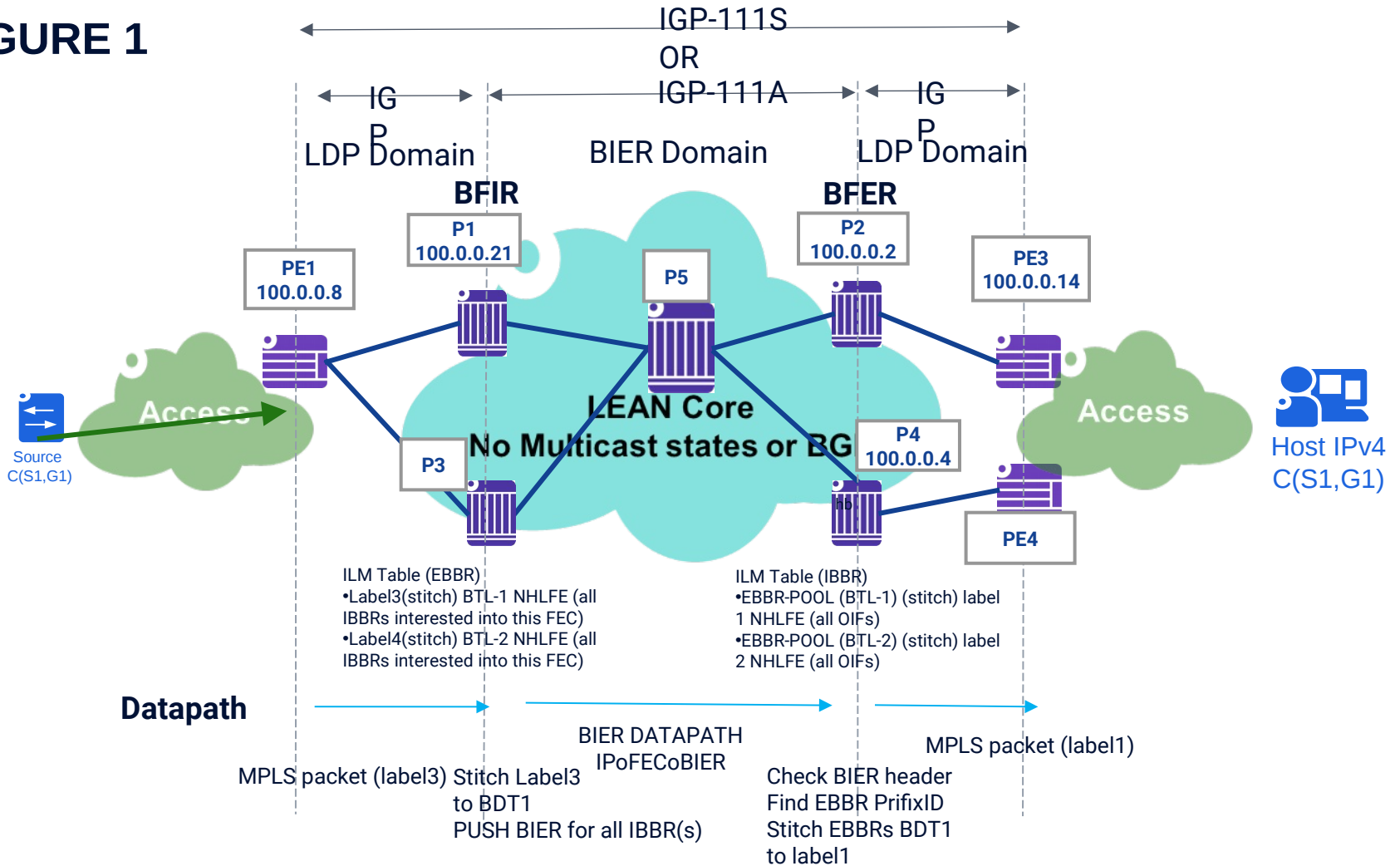
# MPLS table



# The solution mLDP signaling over a BIER Core

- On EBBR there will be a ILM entry of
  - Incoming label stitch to BTL with out going interface all the IBBRs interested in this FEC
- On IBBR there will be a ILM entry of
  - Incoming BTL from a specific EBBR label pool stitch to outgoing label with out going interfaces all mLDP OIFs

# FIGURE 1



# Data Plane

- **Data plane**
  - **Single BIER domain label to represent a P2MP LSP in BIER domain**
  - **Mpls packets arrive on BFIR from LDP domain, will be stitched to BIER domain Tree label (BTL) on BFIR**
  - **BFIR has a list of all BFERs interested in the P2MP LSP and use it to build the BIER header.**
  - **BFIR will use bier forwarding to forward the P2MP LSP to all BFERs interested.**
  - **BFERs will swap the BIER domain Tree label to the corresponding P2MP LSP label and forward to the mLDP domain toward the leafs**



**Thoughts/Questions?**