DrukREN Technical Design

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BTNOG 1

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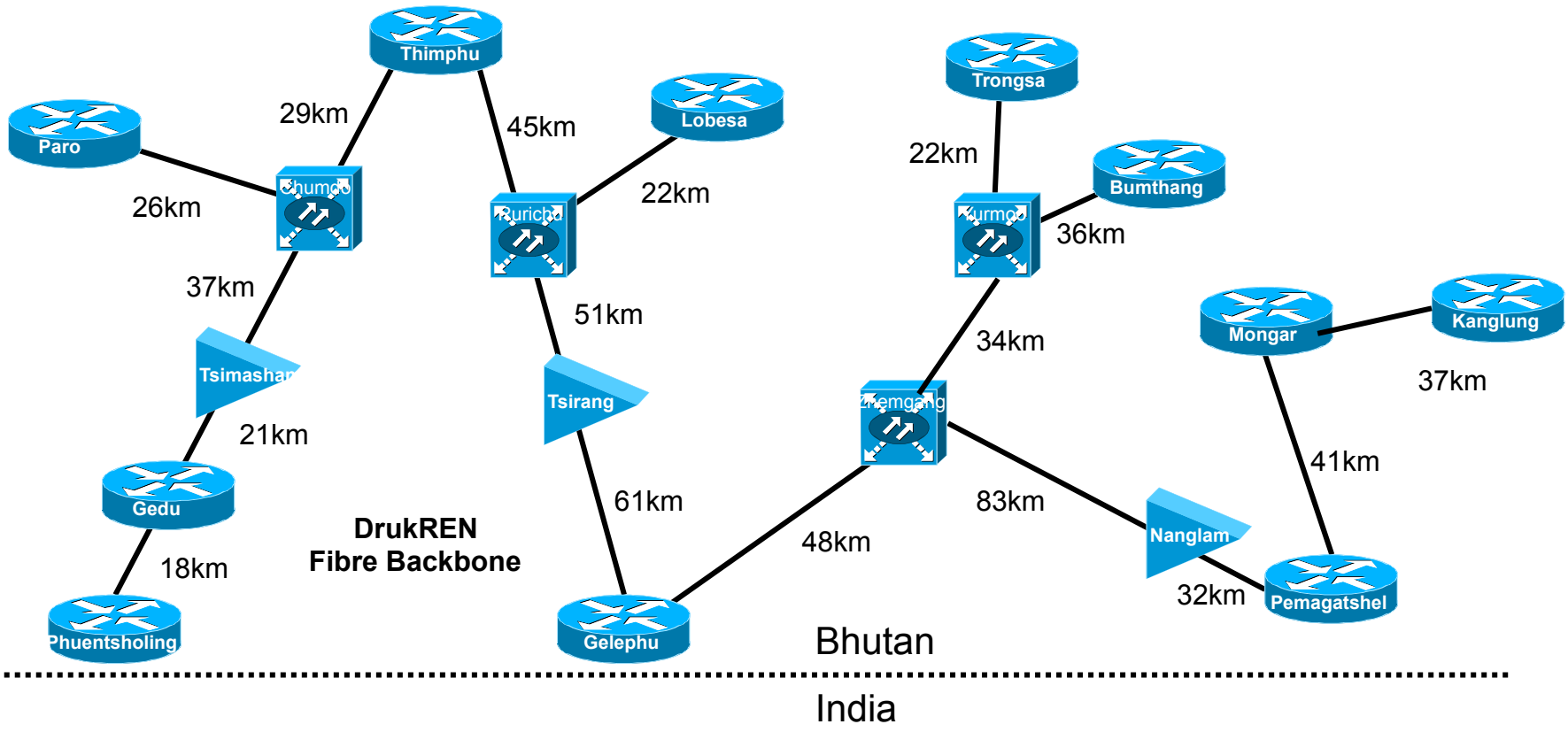
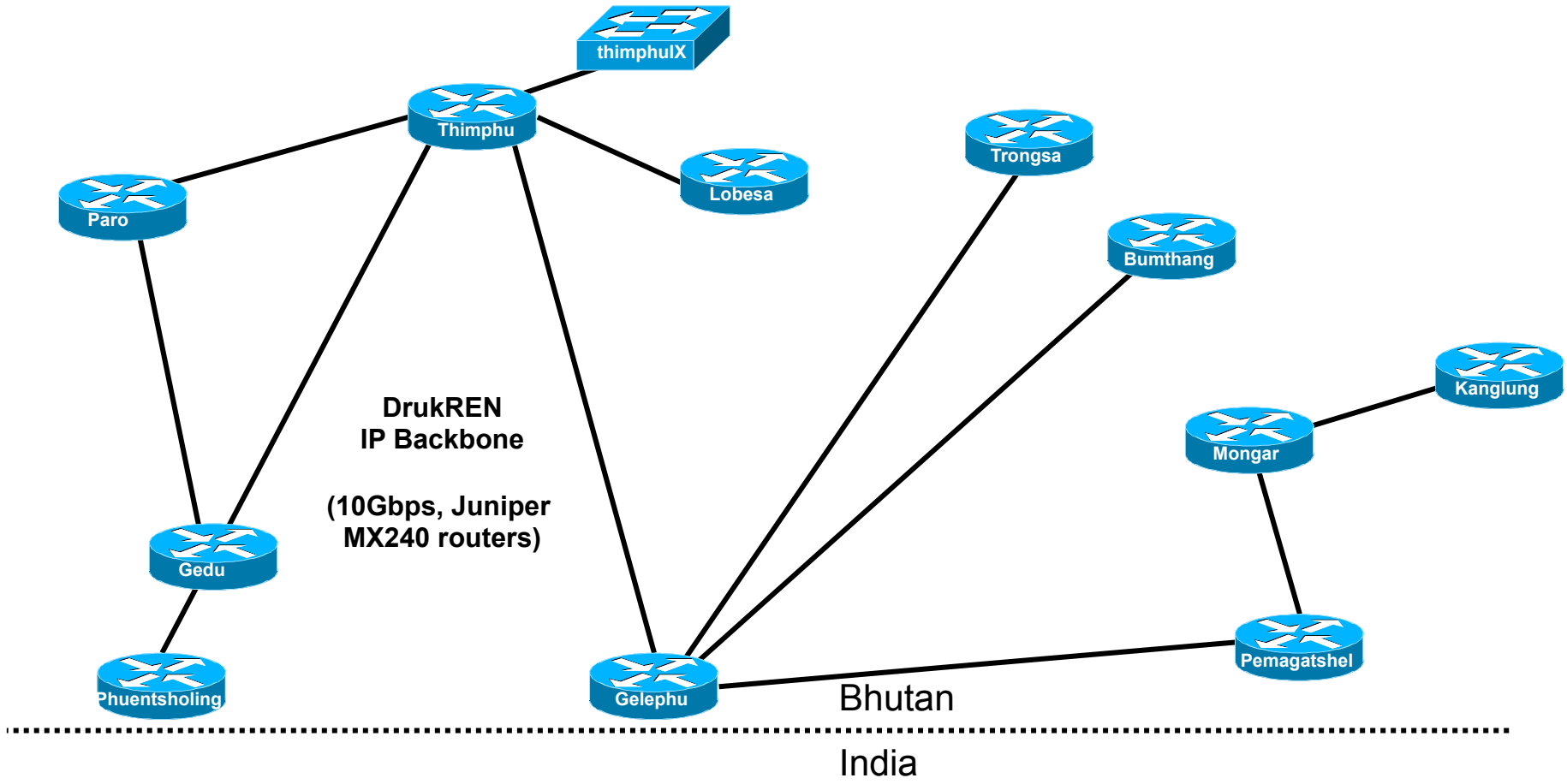
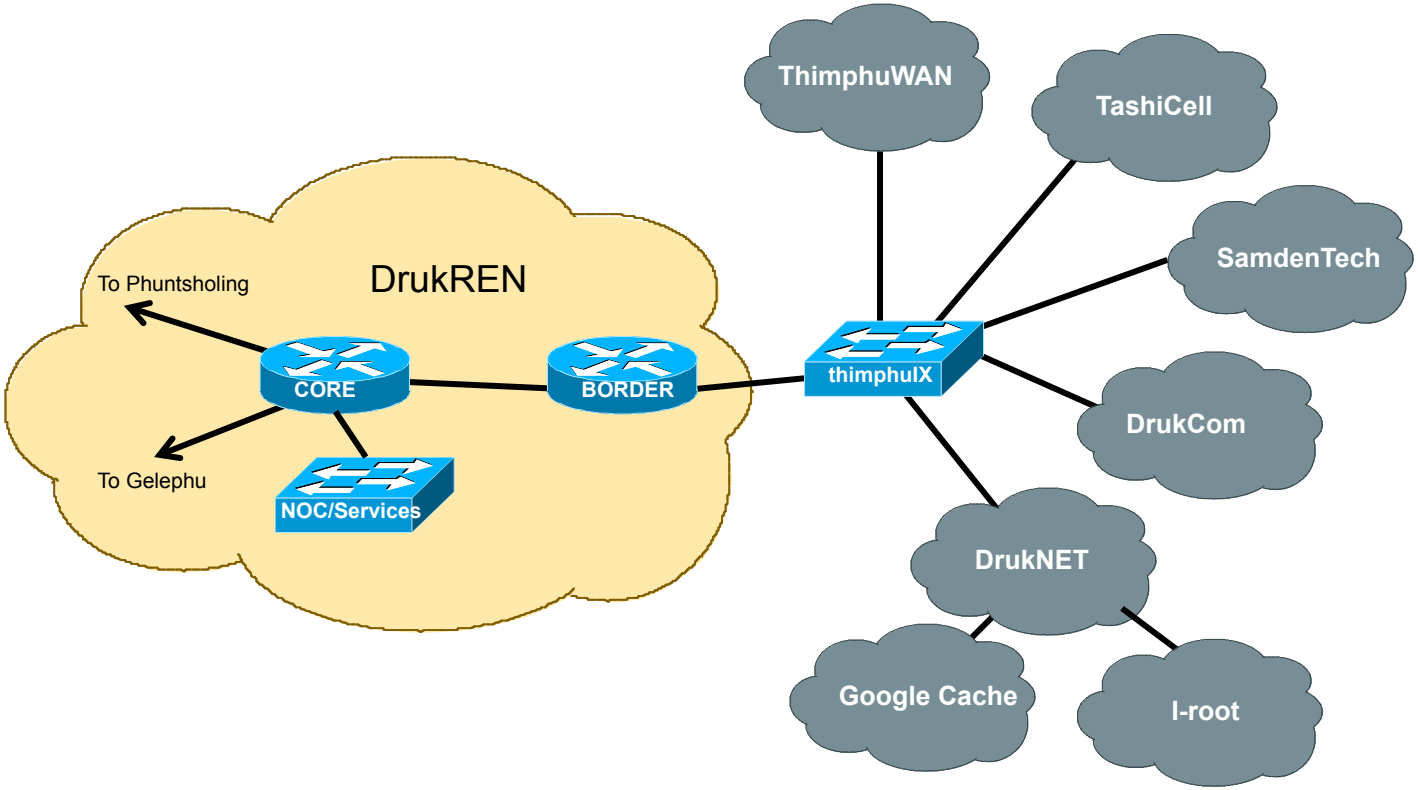
DrukREN – Fibre Optics



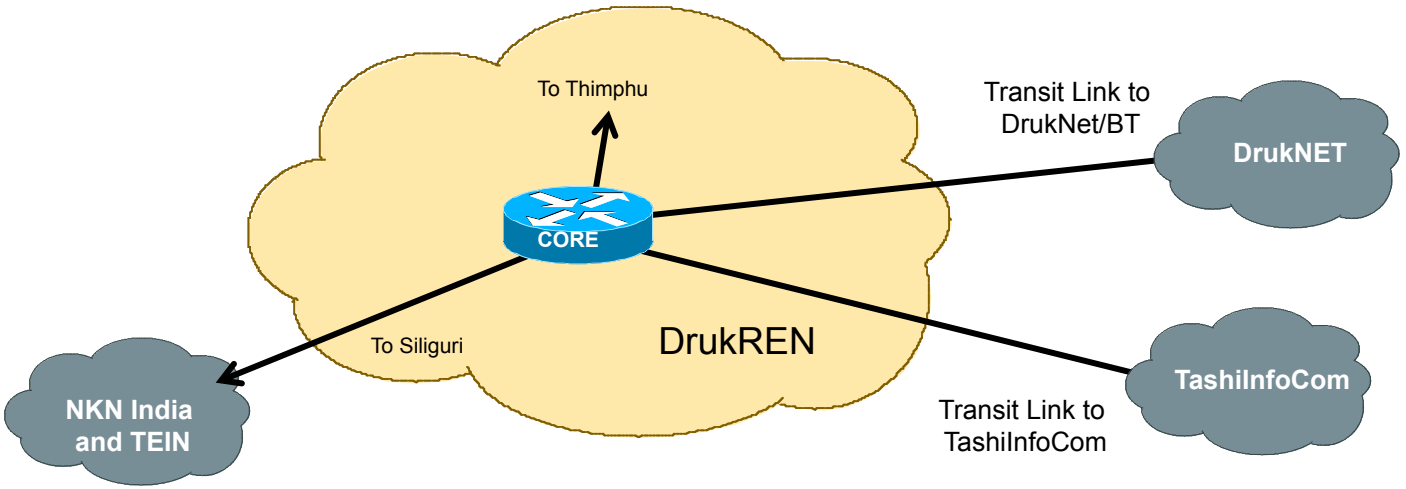
DrukREN – Layer 3



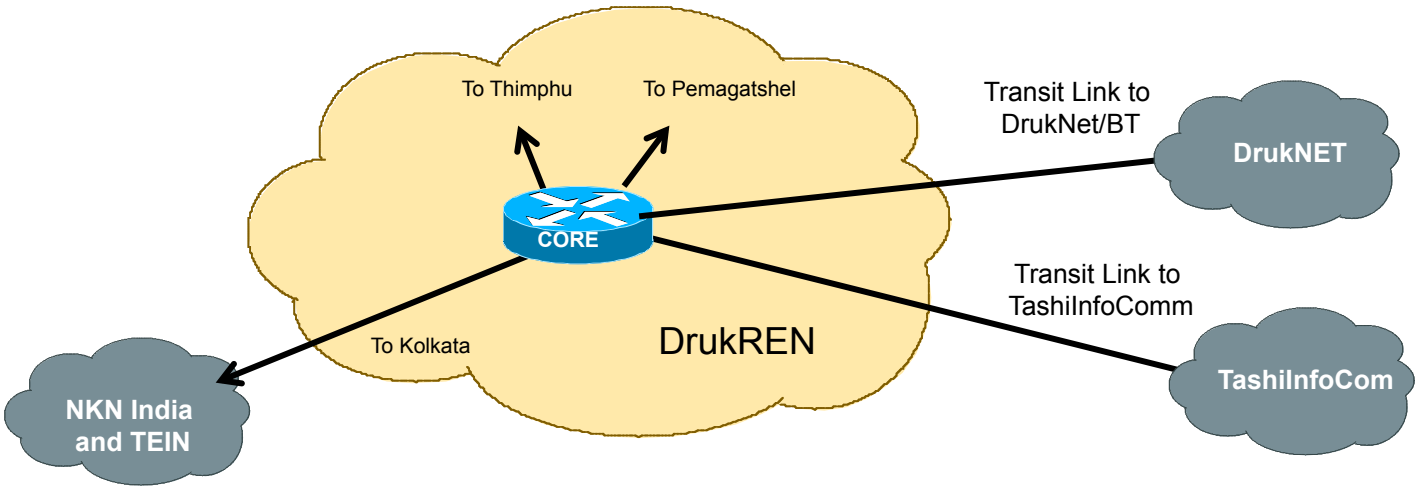
DrukREN – Thimphu Detail



DrukREN – Phuentsholing Detail



DrukREN – Gelephu Detail



DrukREN Routing Protocols: IGP

- ISIS used as IGP
  - NET address: 49.0001.<loopback>.00
  - Carries loopbacks and backbone point-to-point links only
  - Runs Multi-topology supporting separate IPv4 and IPv6 topologies
  - Distribute default route by ISIS
    - Default learned at Phuentsholing and Gelephu borders by eBGP
  - Over-load bit set for BGP start up
  - Metrics:
    - Default metric set to 10000
    - 10GE interface metrics set to 10
    - 1GE interface metrics set to 100

DrukREN Routing Protocols: iBGP

- iBGP used to distribute member prefixes and Internet prefixes
  - Set BGP distances to 200 all round
  - Block default route in iBGP
  - Full mesh iBGP between Gelephu ,Thimphu and Phuentsholing routers
    - Originate IPv4 and IPv6 aggregates on these three
  - Gelephu router
    - Route reflector for Trongsa, Bumthang, Pemagatshel, Mongar and Kanglung
  - Thimphu core router
    - Route reflector for Lobesa, Paro and Thimphu Border
  - Phuentsholing router
    - Route reflector for Gedu

DrukREN Routing Protocols: eBGP

- Thimphu Border router eBGP:
  - Peer at IXP with all other Bhutan network operators
  - Open Peering Policy at IXP:
    - Announce aggregates to all operators
    - Accept only prefixes originated by other operators
- Gelephu router eBGP:
  - Transit to TEIN
    - Accept R&E prefixes, announce aggregates
  - Commercial Internet via DrukNET/Tashi
    - Accept default route, announce aggregates
- Phuentsholing router eBGP:
  - Transit to TEIN
    - Accept R&E prefixes, announce aggregates
  - Commercial Internet via DrukNET/Tashi
    - Accept default route, announce aggregates

Questions?