Multi-Exit BGP Issues

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Issues & Paradigms

- Peering Policy
- Route Reflectors
- Address Planning
- Topology

- Hot Potato
  - aka Closest Exit
- Best Exit
- “Hot Chili”

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Drivers

- Efficient use of resources
- High reliability
- Predictable performance
- Low costs

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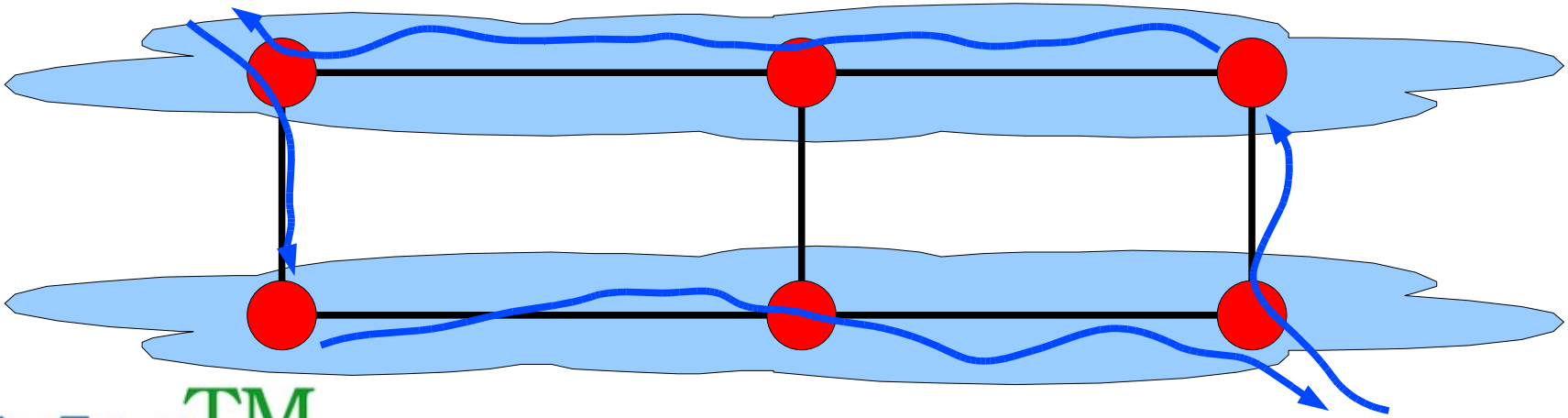
Hot Potato

- Default Paradigm as per RFC4271
- Minimizes Backbone Traffic
- Maximizes Aggregate Bandwidth
- Yields Asymmetric Routing



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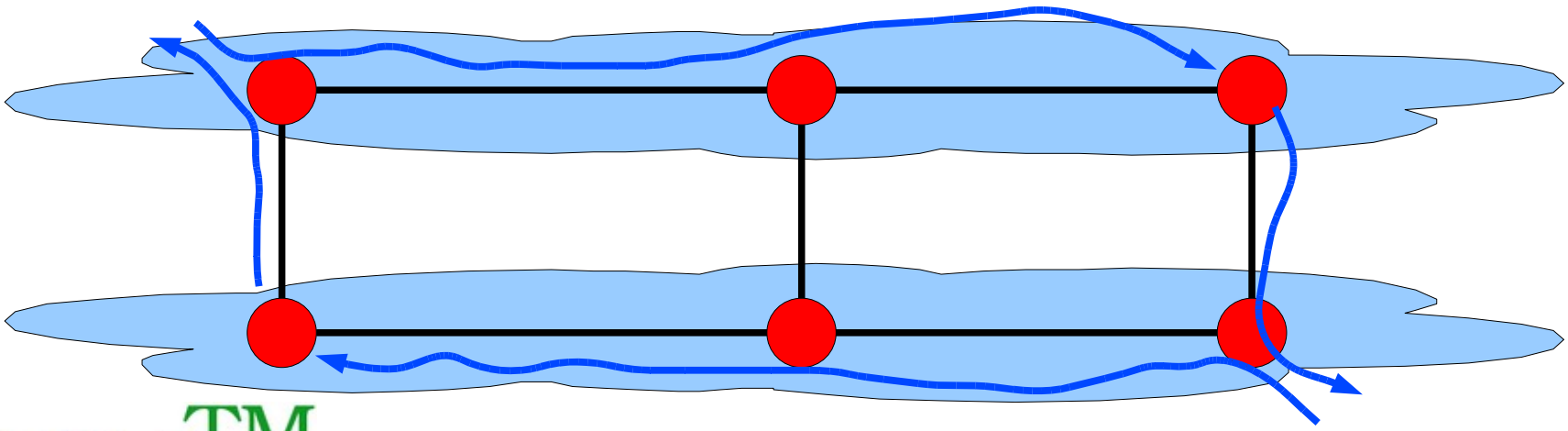
Best Exit

- Requires Multi-Exit Discriminators (MEDs)
- Maximizes Control over Path
- Yields Asymmetric Routing



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Peering Policy

- Do you want to announce MEDs?
- Do you want to accept MEDs?
- Who will you peer with?
- Peering can add potential exit points
  - And thus potential aggregate bandwidth
- Peering can also reduce their number
  - But improve their quality

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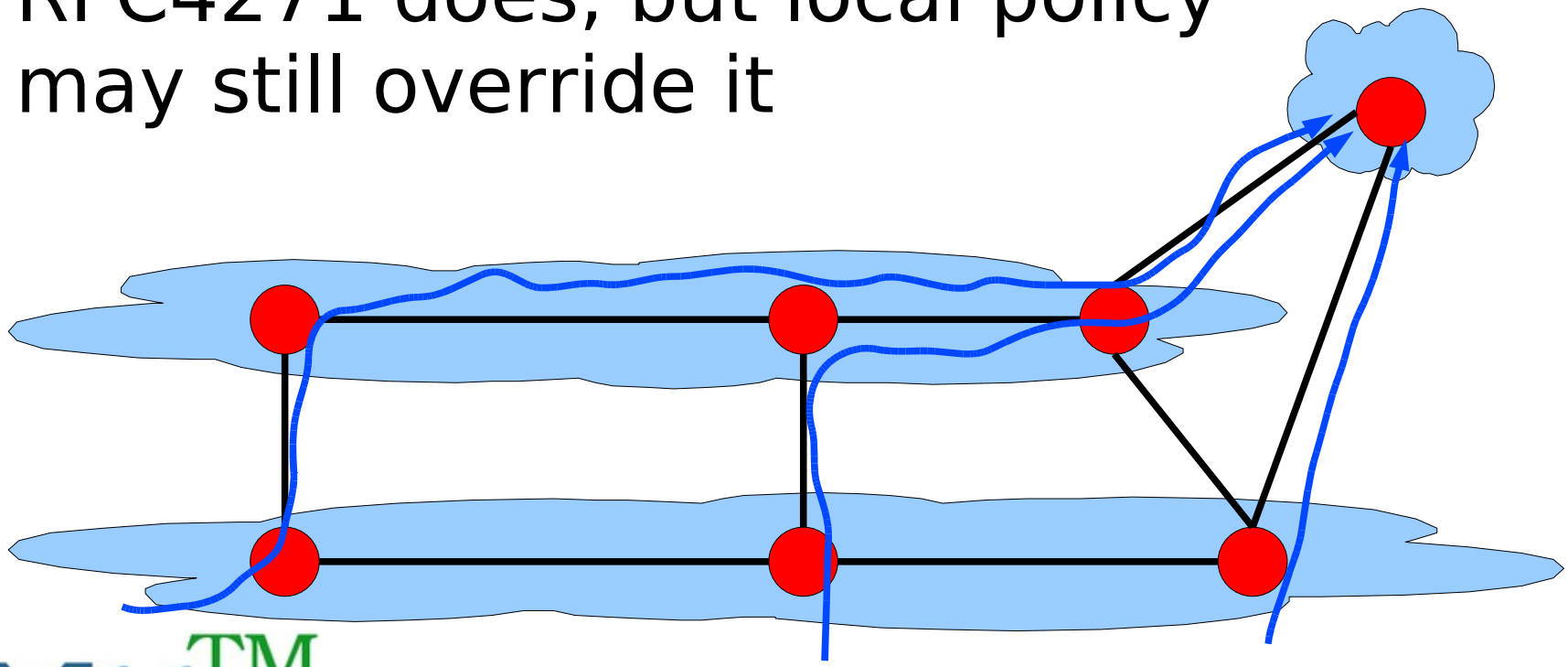
Hot Chili

- RFC1771 doesn't specify AS_PATH as part of the best path selection algorithm
- RFC4271 does, but local policy may still override it



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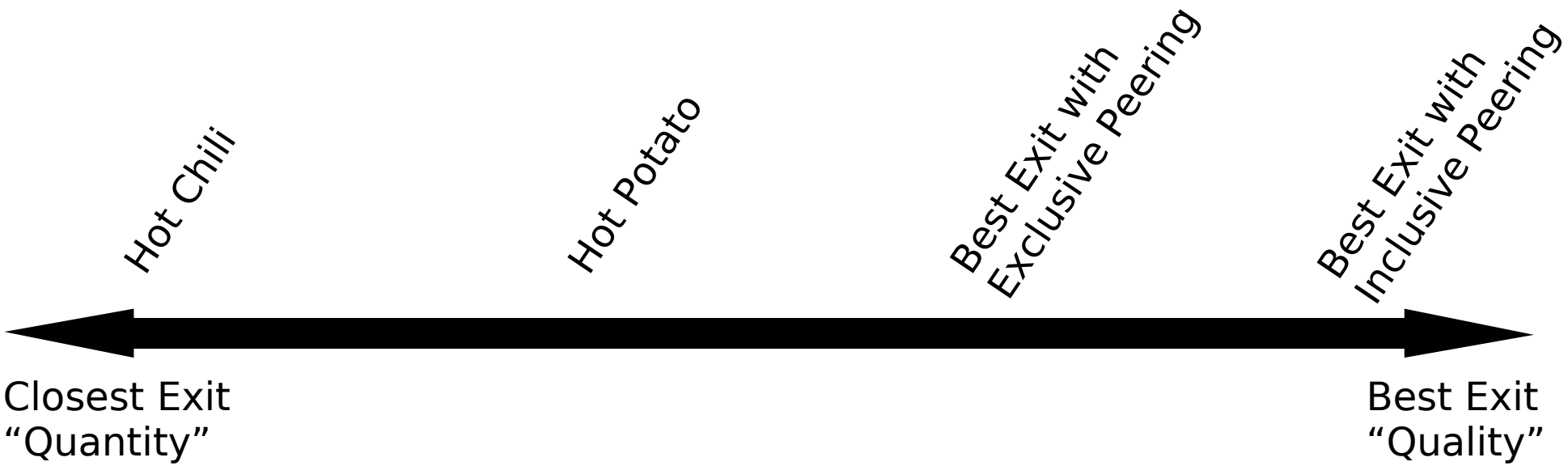
Peering Paradigm Optimization Scale



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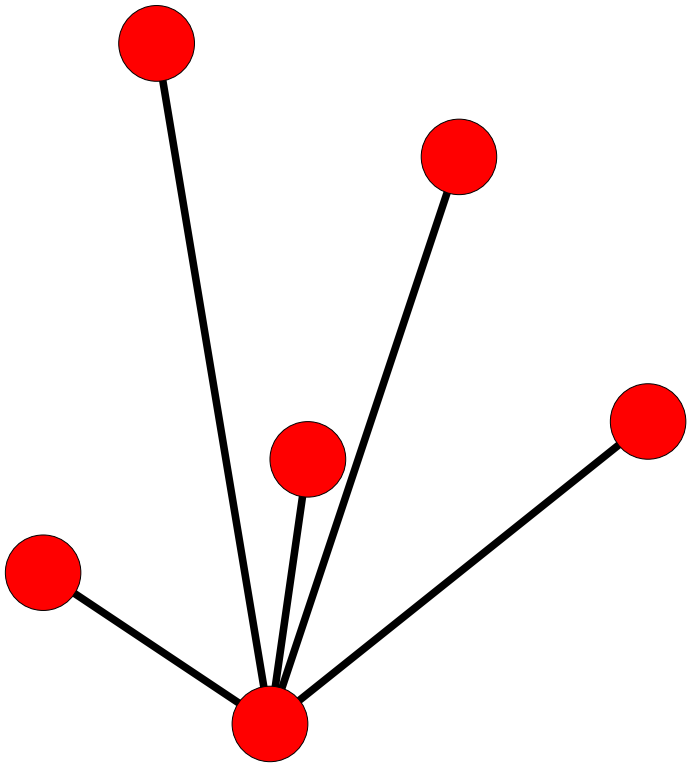
Route Reflectors

- RR chooses the best path according to its local view of the network
- When the best path disappears, it takes time to find the next best path

Backbone Topology

- “All roads lead to Rome”



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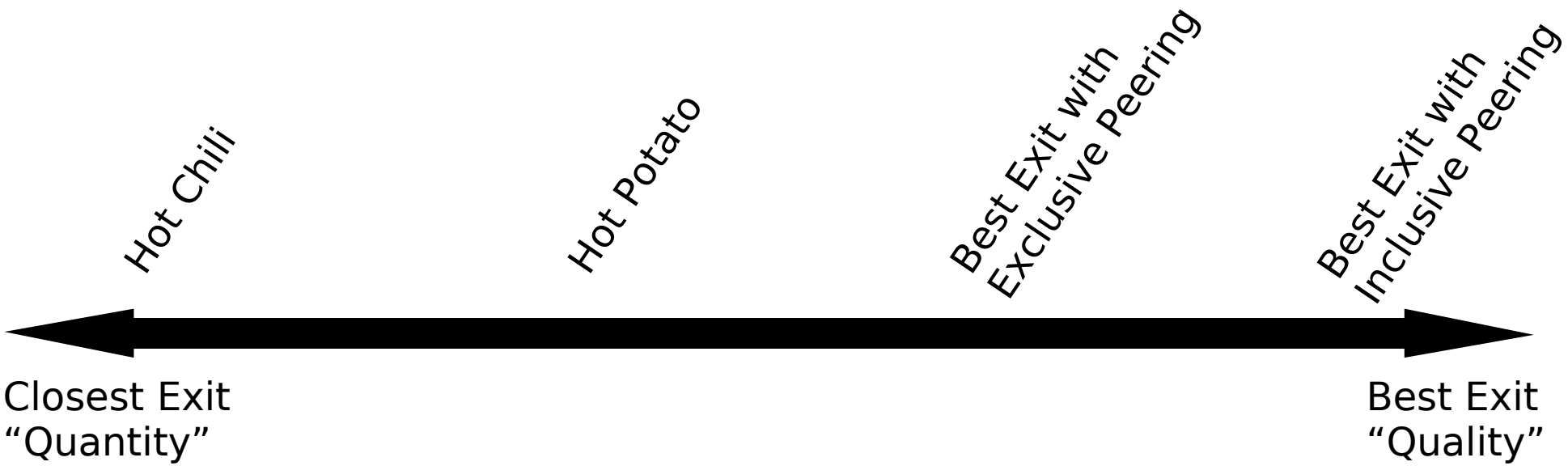
Address Planning

- If addresses from one prefix are spread across the whole network, that prefix cannot benefit from MEDs
- Example: Funet's 193.166.0.0/15
- Counter-Example: Funet's Universities

Peering Paradigm Optimization Scale



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