IP Interconnection Panel
IP possibilities - 2013

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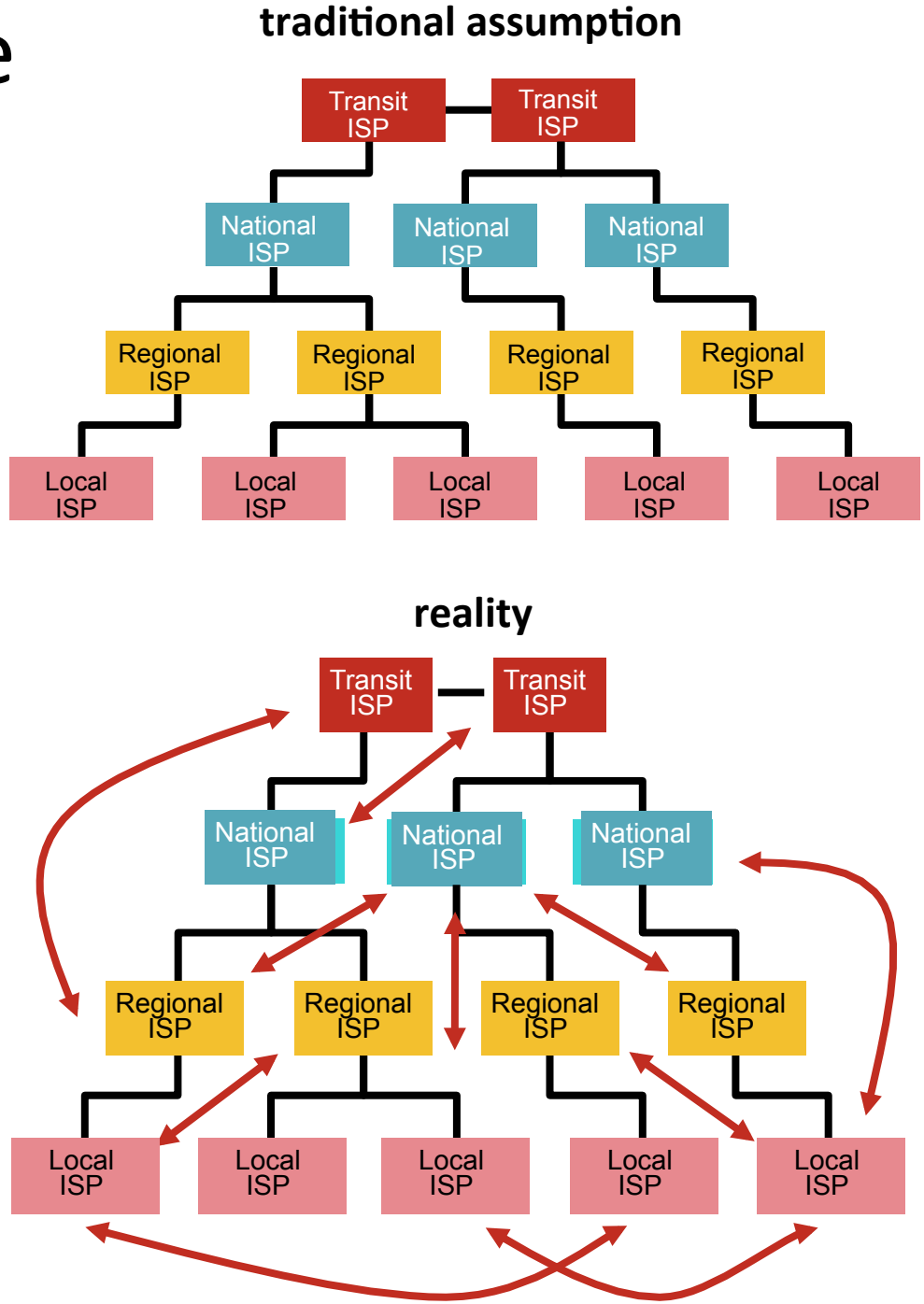
Internet structure

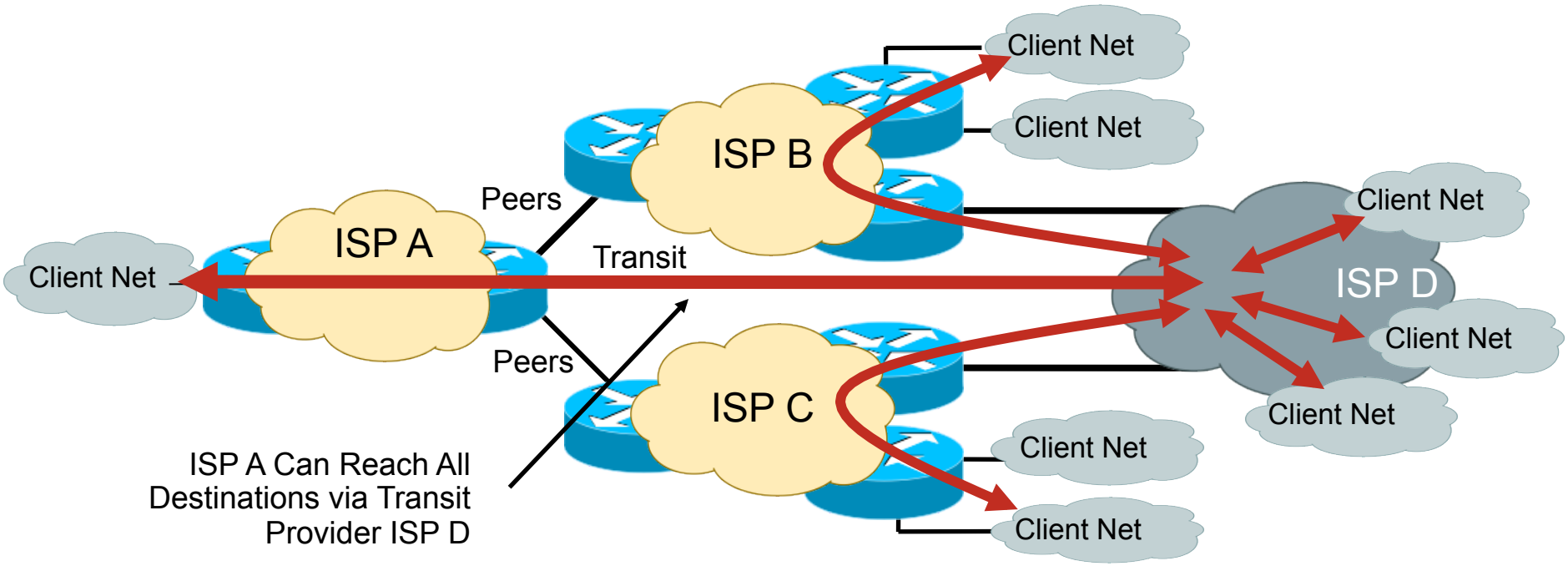
- the Internet is an interconnection of ~30,000 (semi-)autonomous service providers
- there is no central coordination for the management of interconnections, services, and tariffs
- Internet peering ecosystem includes

  many policies / many services / one Internet
- unordered subset of interconnects
- driven by business requirements underpinned by performance
- non-disclosure and bi-lateral agreements
- peering is now considered a corporate asset and legal concern



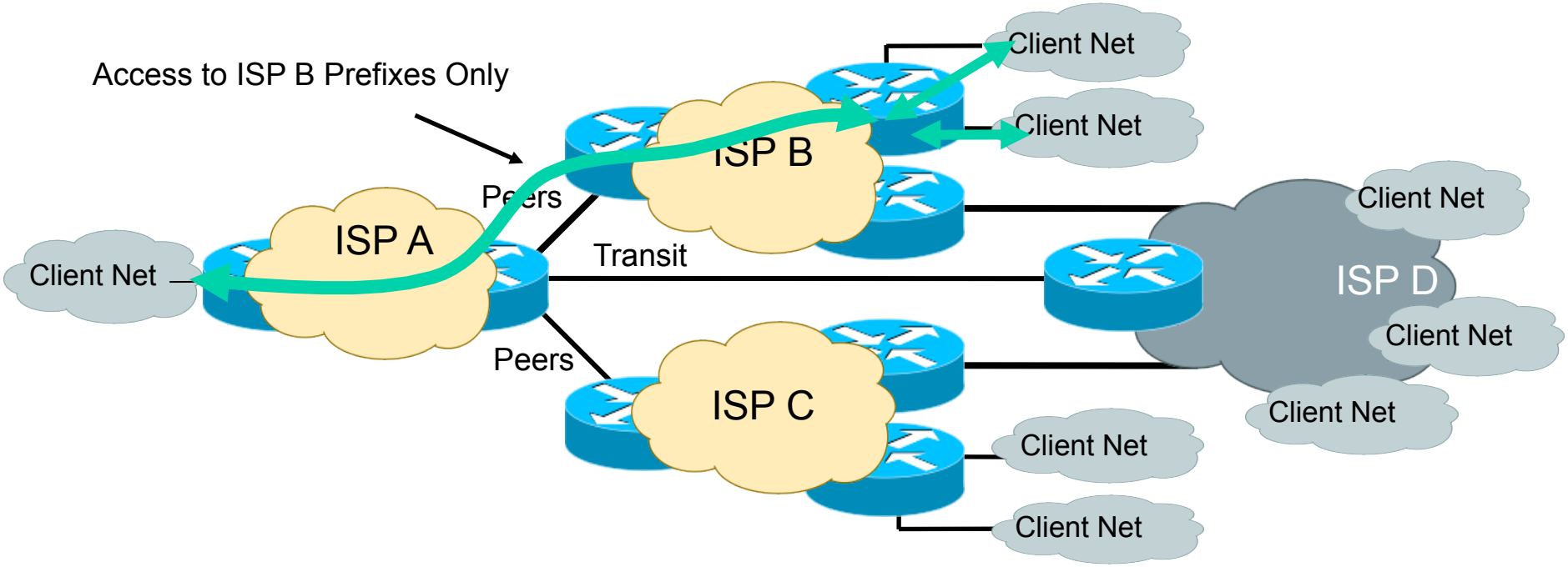
transit - definition

- transit is the business relationship where one ISP provides reach-ability to all destinations in its routing table to its customers
- transit provides connectivity to a superset of all destinations

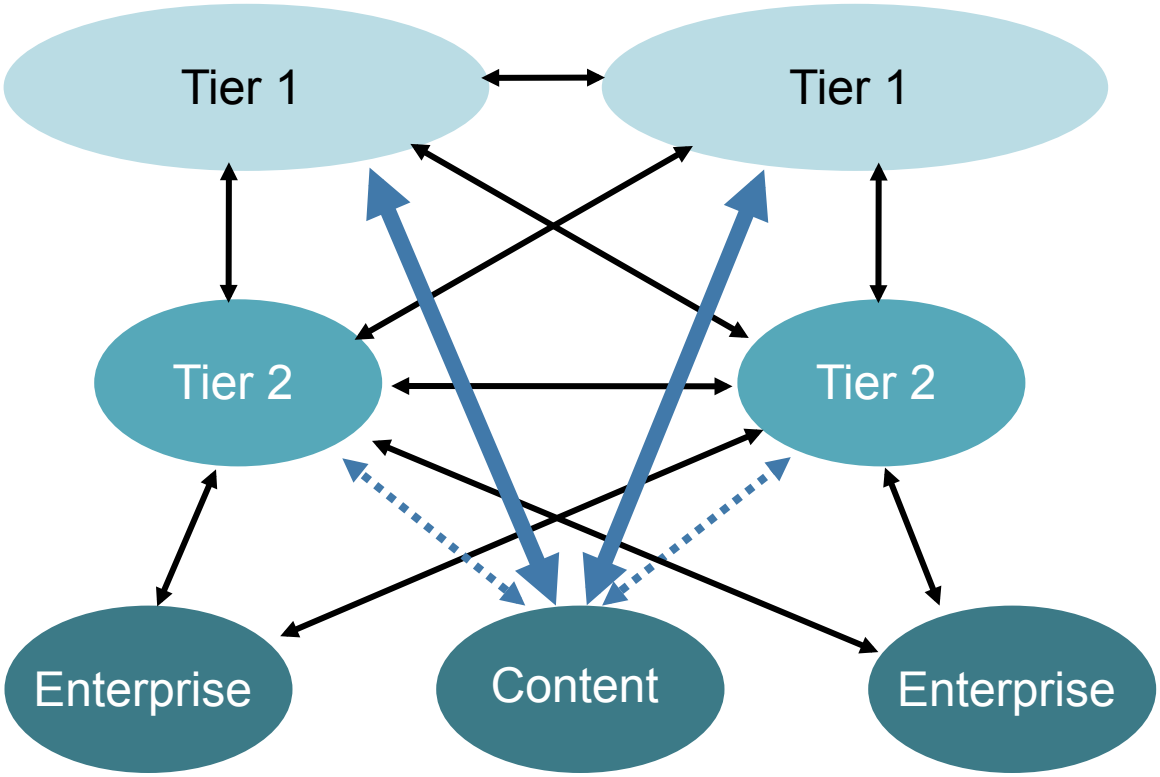


peering - definition

- peering is the business relationship where ISPs provide to each other reach-ability to each predefined portions of their routing table
- peering provides connectivity to a subset of a provider's customer destinations

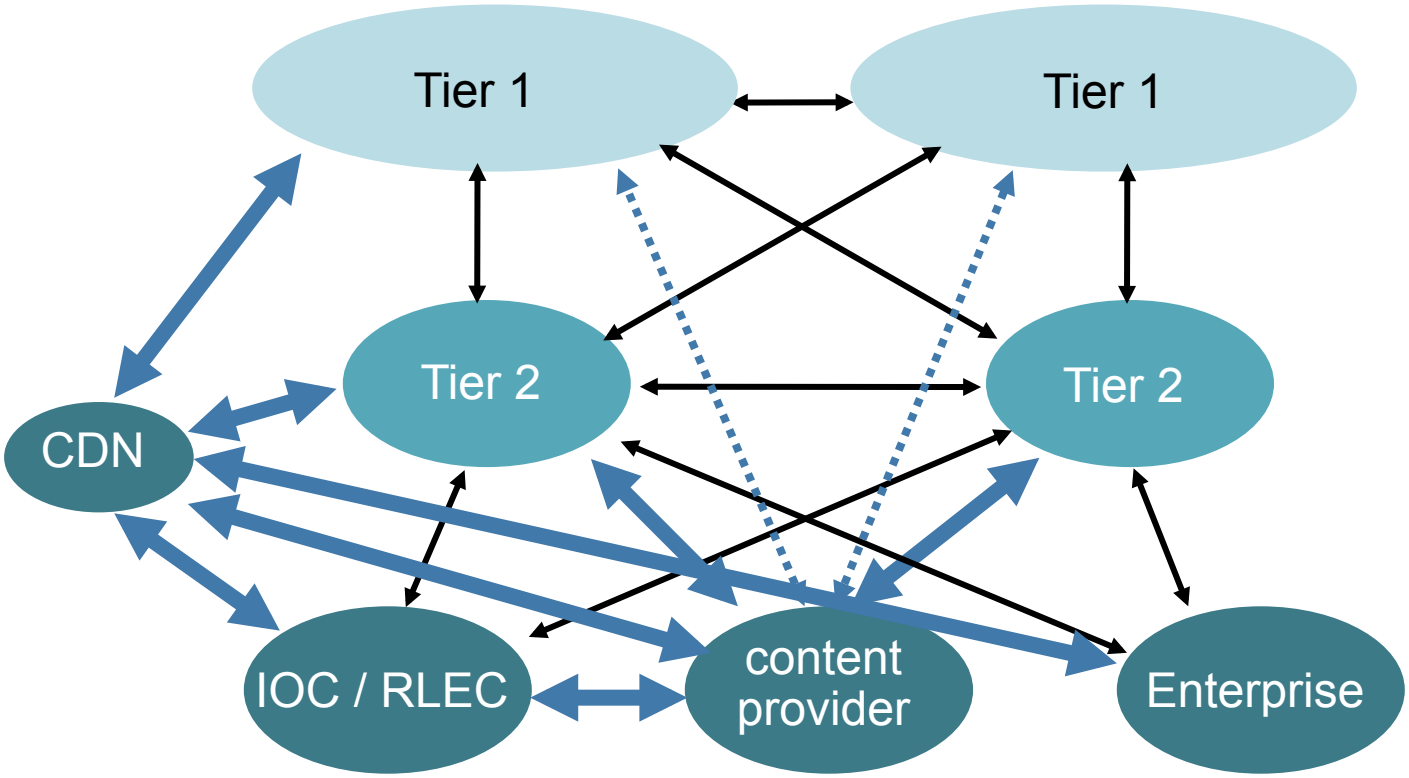


traditional Internet peering model



- tier 1 providers have access to the entire Internet (region) routing table solely through peering relationships
- tier 2 providers must buy some transit from tier 1 providers
- content providers buy transit (primarily from tier 1) to provide content

Internet peering evolution



- tier 1 providers have access to the entire Internet (region) routing table solely through peering relationships
- tier 2 providers must buy some transit from tier 1 providers
- content providers peer with access networks providing content directly onto the broadband networks

peering rationale

for the ISP

- commonly estimated, 10 - 20% of traffic can be peered away
- even under congestion, capacity can be upgraded and managed more effectively

for content providers

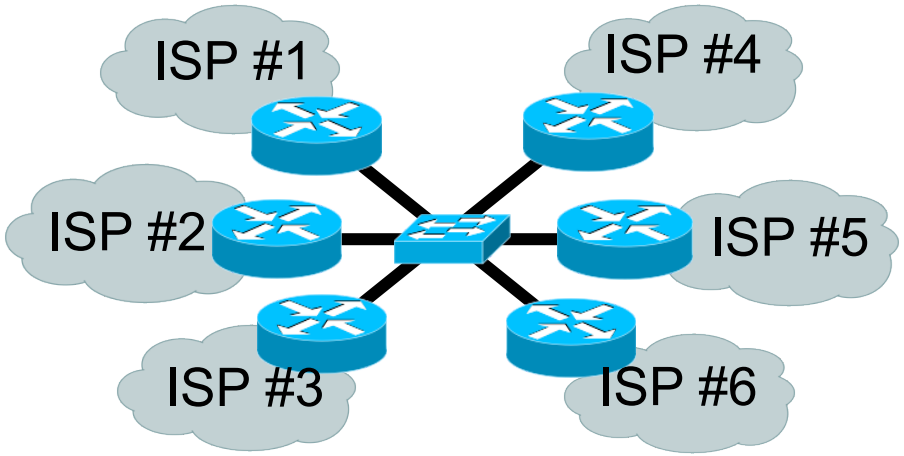
- improve application performance, reduction in latency
  - improvement in throughput
- CDNs as content providers
- peering at NAPs or with ISPs improves burstability
  - backup for on-net servers
- marketing - CDNs tout the number of interconnections they have to their customers

common to both

- reduce transit ISP service costs
- upgrades require less planning and costs
- greater control over routing and traffic load balancing

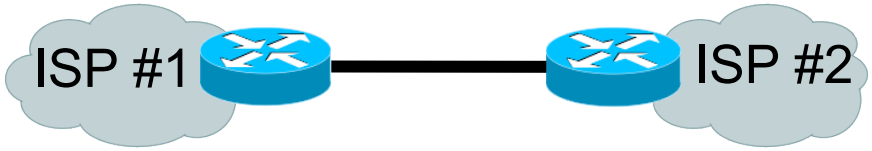
Internet peering interconnection

public / shared peering



switched ethernet

private peering



ethernet

- peering between equivalent sizes of service providers (e.g. tier 2 to tier 2)

  shared cost private interconnection, equal traffic flows

  "no cost peering"

- peering across exchange points

  if convenient, of mutual benefit, technically feasible

- fee based peering

  unequal traffic flows, "market position"

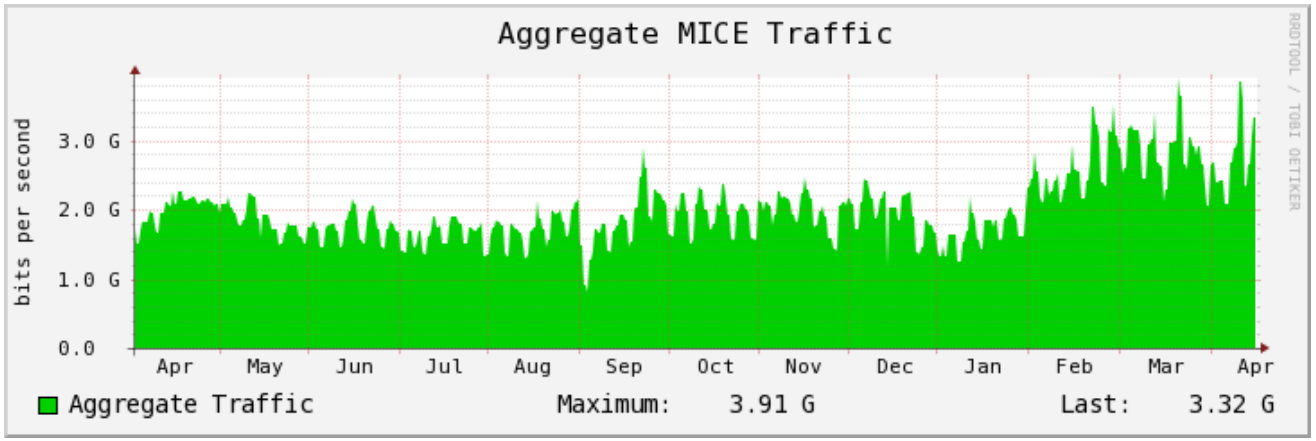
additional/local resources

- http://peeringdb.com

  find a peering location near you!
- MICEMN
  - http://micemn.net/
  - here in minneapolis, mn
  - less than 2 miles from where you're standing/sitting

MICEMN participants

Airstream Communications
AITech
Akamai Technologies
Arvig
Berbee Information Networks Corporation
Cooperative Network Services, LLC
Enventis Telecom
Hurricane Electric
Integra Telecom
ipHouse
MDU Ethernet Solutions
Minnesota VoIP
Paul Bunyan Communications
Savage Communications Inc.
Spiralight Network LLC
TDS Telecom
US Internet
VISI
Wikstrom Telephone Company, Inc.



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THANK YOU