

IPRAN grid-ring topologies -
Problem statement for Fast IGP
Convergence algorithm

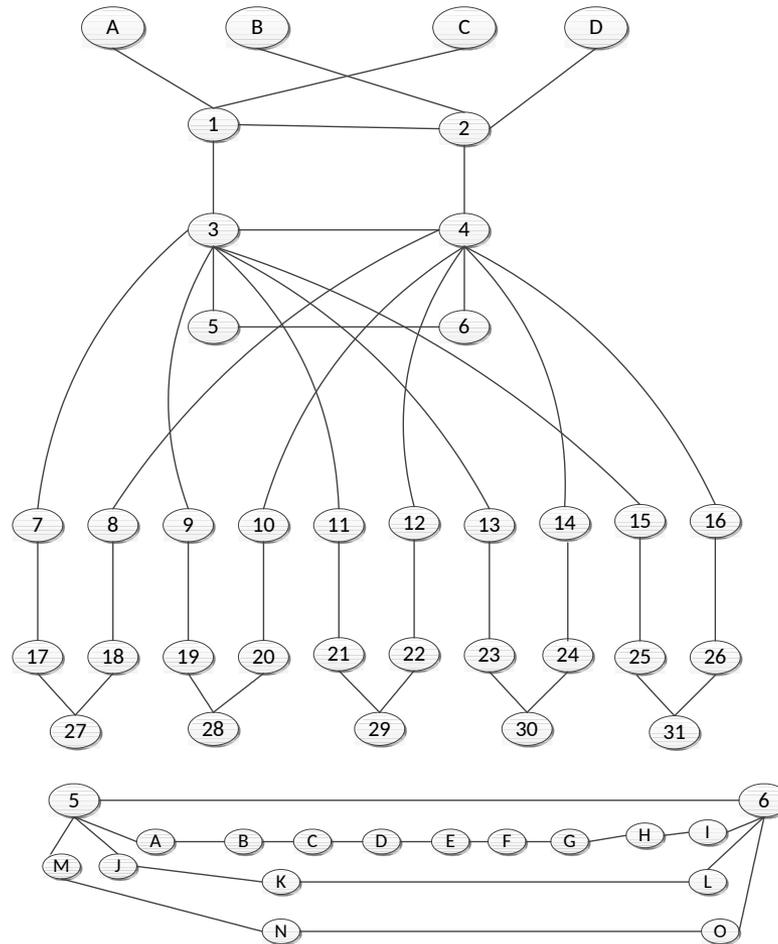
Susan Hares

draft-hares-lsr-grid-ring-convergence

What Makes some IPRAN Topologies unique

Not the
Dense mesh of
Data center

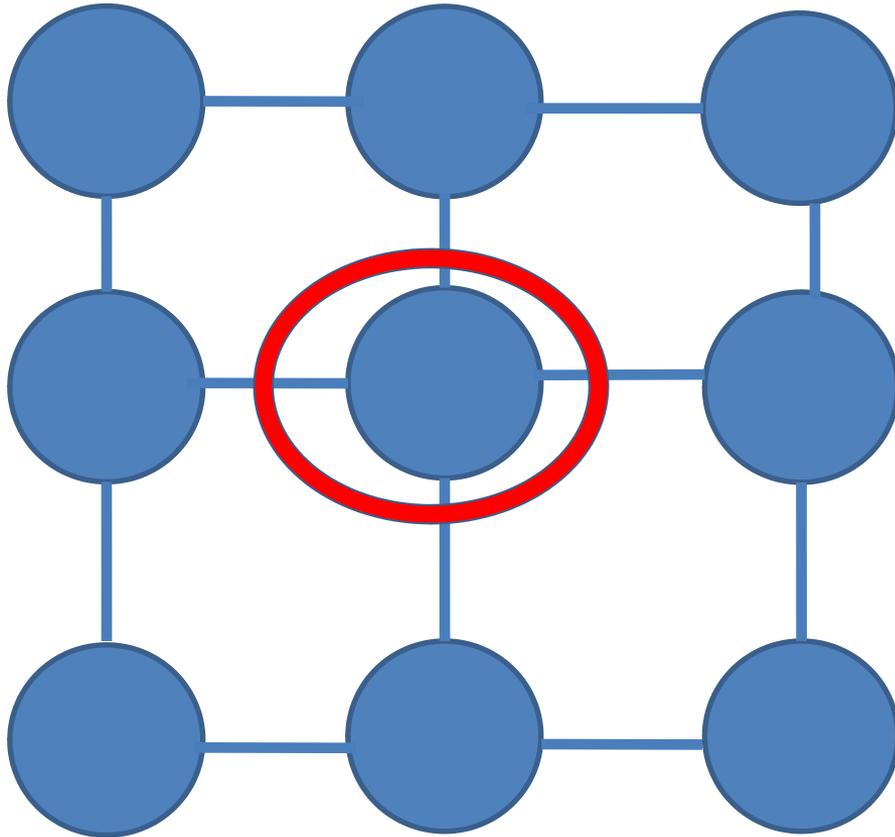
Random styles of
GRID topologies



Rings connected to
Two GRID nodes
(ring-grid node)

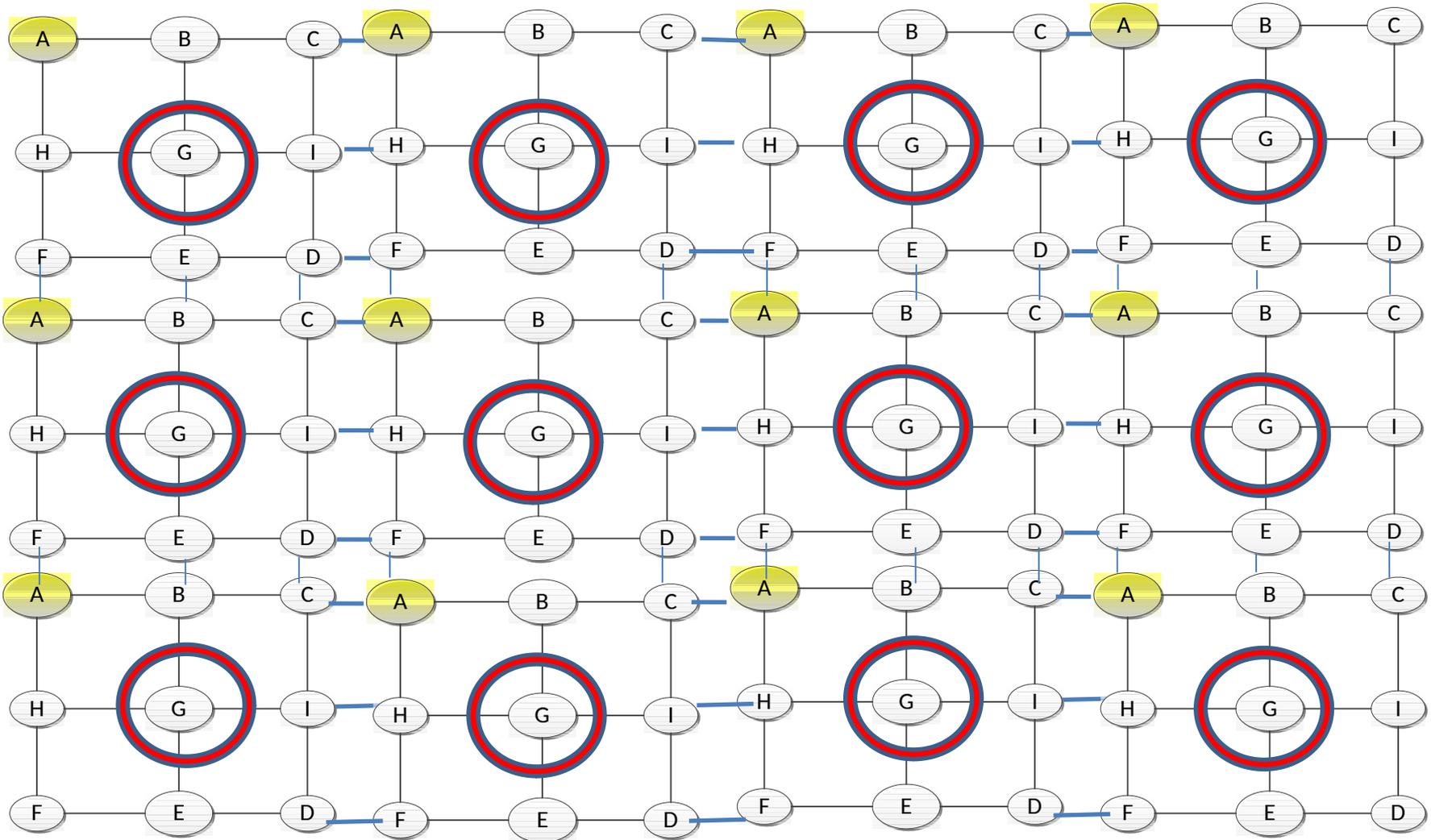
Hares - LSR - IPRAN topology + FAST IGP
Convergence Flooding

Basic Unit of Grid



Red most
Connected
node

Example 9X 12 Grid



Problems with IPRAN deployments

- Ring with routers (usually Sonet) connect to two Grid Routers – mobile RAN nodes hang off routers
- GRID size varies (20 by 20 to 10K by 10K, >>)
- Desire single IGP, but need fast convergence (less than 200 ms a goal)
- Rolling power outage in some deployments where power grid has problems

Desired in Fast IGP Technology

- Zero-configuration for Ring (self-configuration or template based)
- Fast IGP
 - Minimize convergence time under 200ms for fast IGP convergence algorithm.
 - Algorithm used only after initial IGP converges
 - Fast Reroute must handle multiple failures (from rolling power outages/brownouts).

Draft Content + Next Steps

- Draft: contains convergence equations – to provide theoretical background.
- Next Steps: Can we evaluate the network topology when considering the value of alternative FAST IGP algorithms?

Questions

