Dynarc
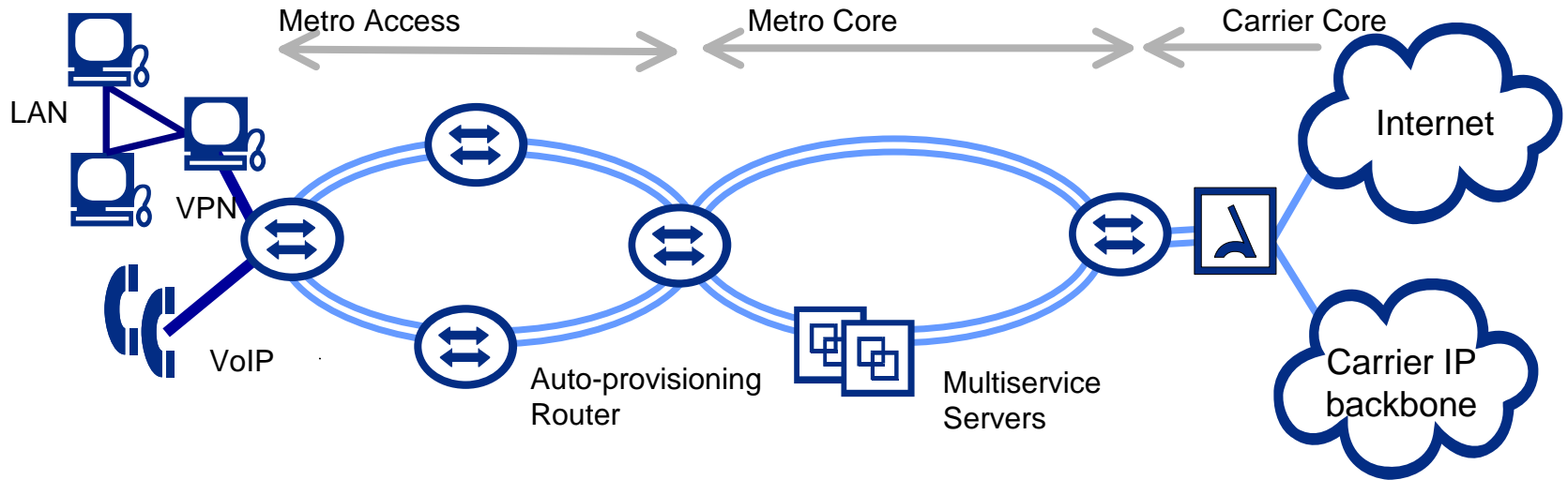
"RPR: What is the game? Why do we want to be part of it? What is the winning story?

Frederic Thepot <fthepot@dynarc.com>

Who are we?

Metro Access   Metro Core   Carrier Core

LAN

VPN

VoIP

Internet

Auto-provisioning
Router

Multiservice
Servers

Carrier IP
backbone

- Founders Are Four Researchers From The Royal Institute of Technology, Sweden
- Developed Dynamic synchronous Transfer Mode Technology - DTM
- Dual Headquartered in Sunnyvale CA, Kista Sweden.
- Employees, 120 Worldwide

Dynarc has working solution today

Auto-provisioning routers with CRS :

(Channelized Reserved Services)

- Channelization
  - Service Level Agreements Guaranteed at Any Rate
  - Full Bandwidth Guarantees Downstream and Upstream
  - Protects Customer Traffic From Bandwidth Starvation
  - Restores Fast and Automatically in Case of Link Failure
  - Established On-the-fly and Extremely Fast

- IP Networking
  - Resources Accessable for IP traffic
  - Reservation Based on Layer 2-4 Information
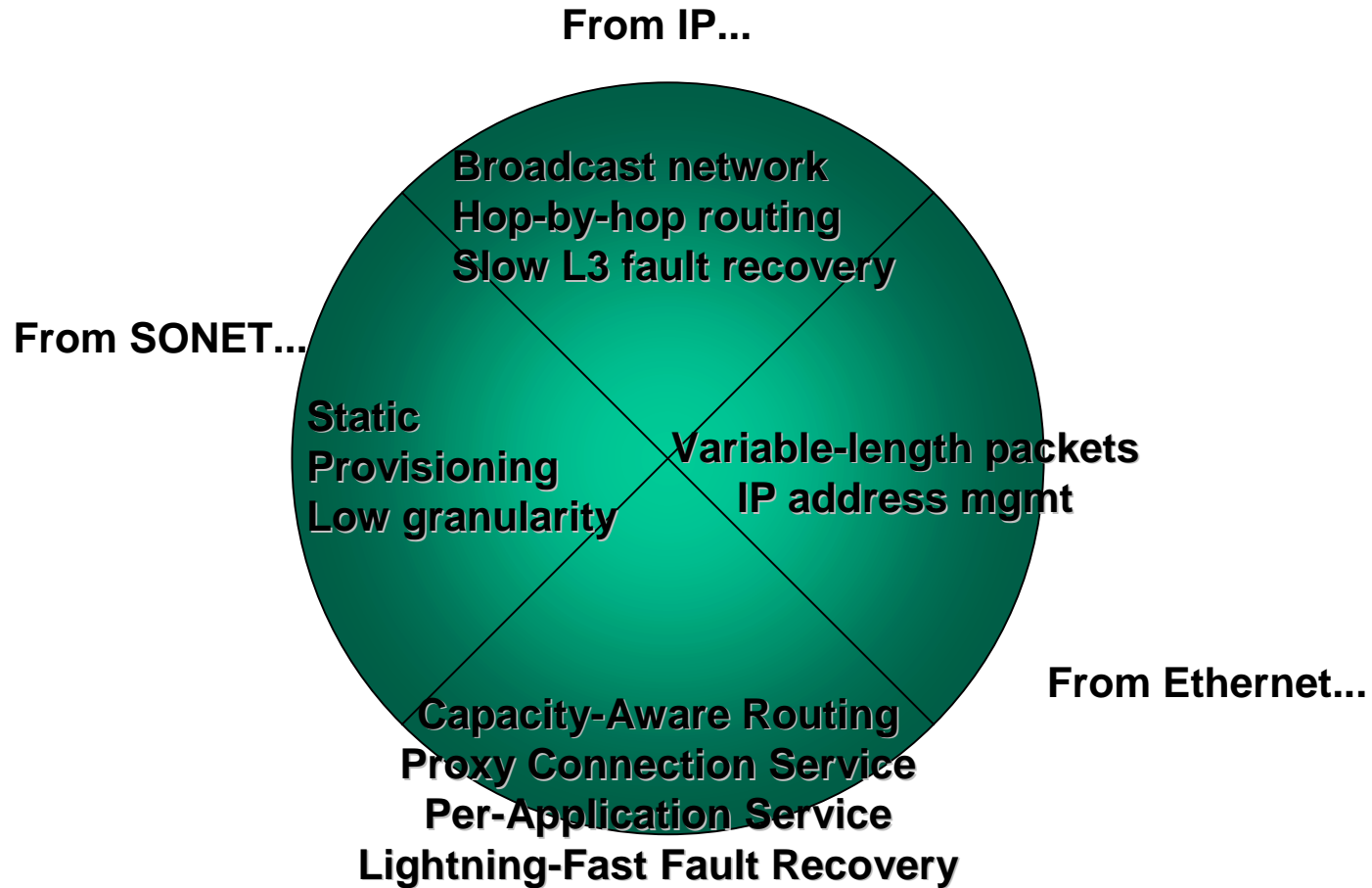 - Global IP Addressing
  - IP Routing Protocols

DYNARC

- " The right tool for the right usage! "

DYNARC
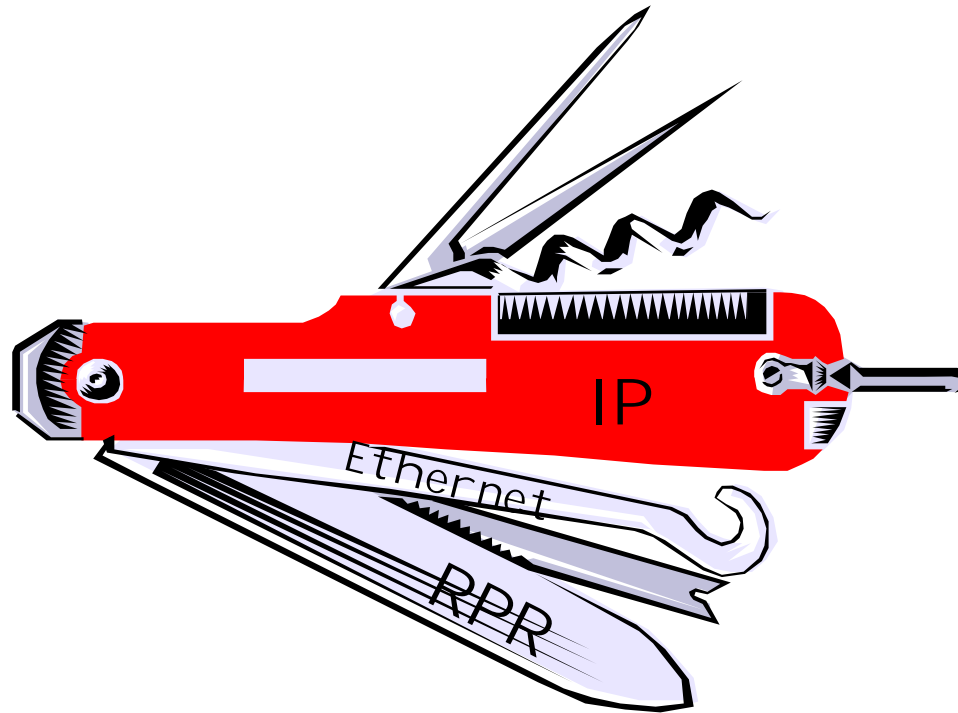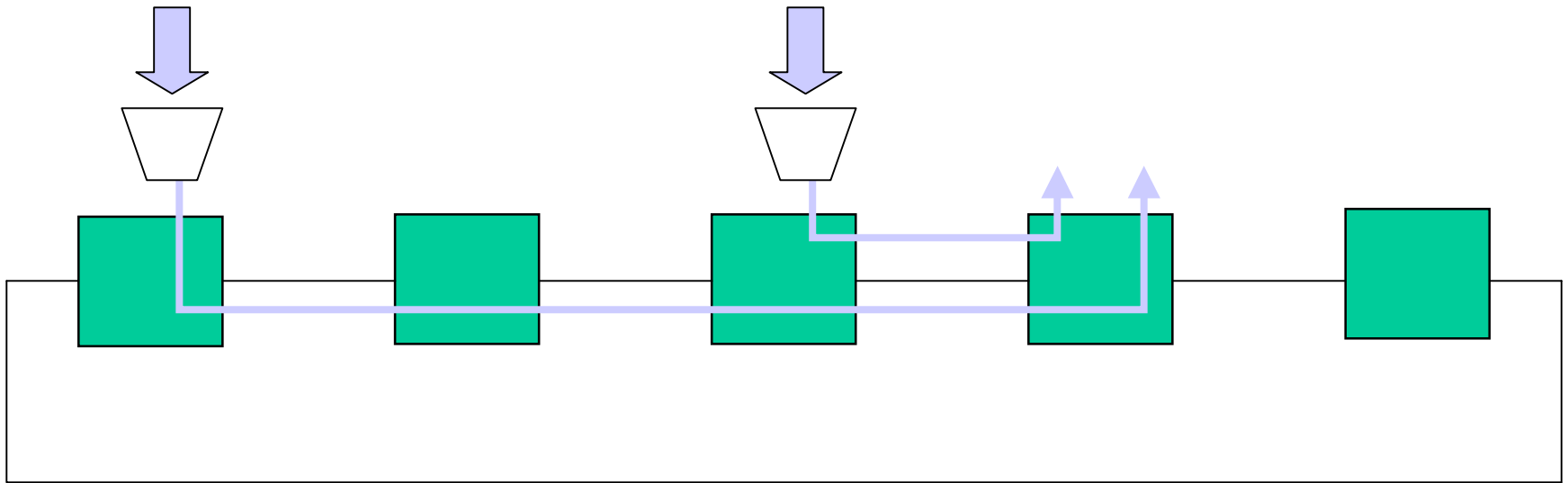
- RPR is not a chain of Ethernet switches!
- RPR is a distributed switch!
- The ring is the back plane of the switch!
- Asymmetric model: switched ports, ring ports
- Distributed Traffic Management
- Simpler buffer management

RPR: DYNAMIC Control Plane

- Control Plane is necessary for:
  - Plug and play auto-topology
  - Auto-recovery
  - Resources management advertising
  - Dynamic provisioning of resources
- A software control plane will offer flexibility
- Messages will be sent independently from the data packets
- It has to be service oriented
- It will enable Statefull Layer 7 switching

RPR: MULTI-SERVICES Architecture

From IP...

Broadcast network
Hop-by-hop routing
Slow L3 fault recovery

From SONET...

Static
Provisioning
Low granularity

Variable-length packets
IP address mgmt

From Ethernet...

Capacity-Aware Routing
Proxy Connection Service
Per-Application Service
**Lightning-Fast Fault Recovery**

Resilient Packet Rings

DYNARC

- Dual counter rotating rings
  + ring wrapping: yes but we
  can do more!

- Network may not go down
  - Node or link failure =>
    graceful degradation

- One link failure
  - Single ring plus bus
    - Full connectivity

- Dual link failure
 - Double bus
    - Still full connectivity
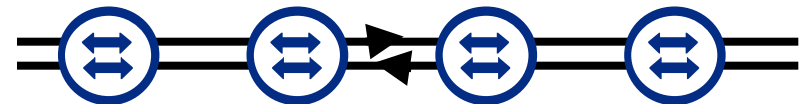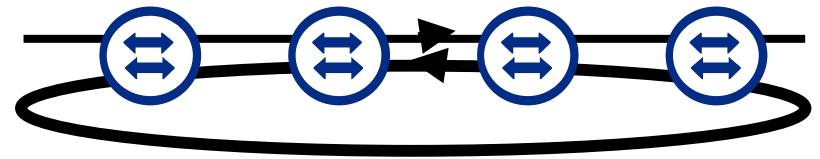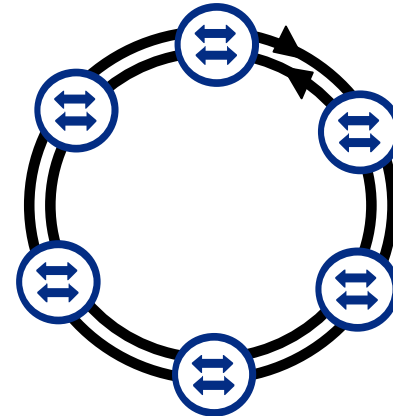
RPR: Multi-ring provisioning

- Insignificant loss of traffic with single link failure (most common case of break)
- Unprecedented scalability where new rings can be added as needed
  - No limitation in the number of parallel rings
  - Each additional ring increases the throughput incrementally
  - The rings can run on different speeds
  - Rings can be managed as one aggregate resource
- No additional set-up required: Functionality is inherent

Etc…
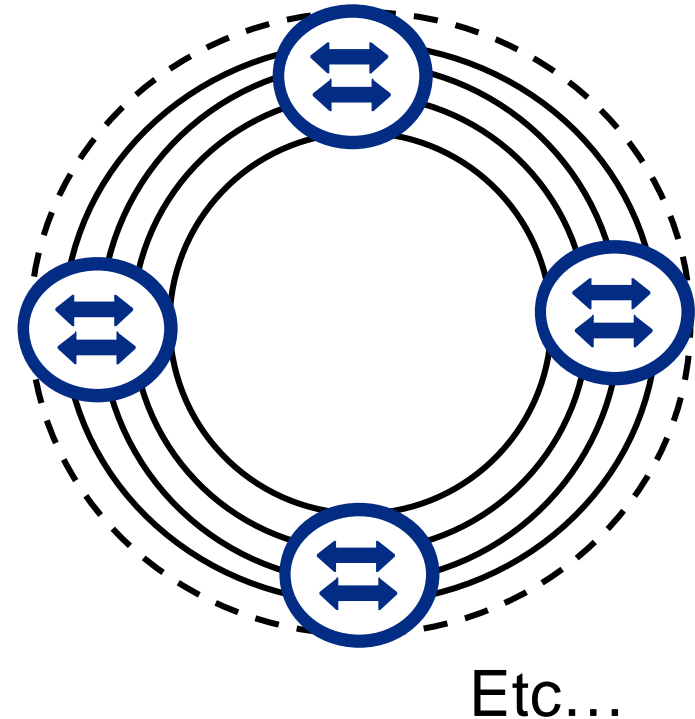
- Reduce costs
    - Lower capital expenditure
    - Lower costs of operation

- Increase revenues
    - Support for more and new services
    - Differentiated billing

- Future-proof solutions
    - Scalable architecture; capacity, addressing, "invest as you grow"
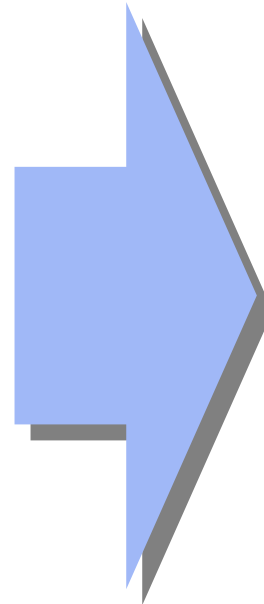
Strengthen the service providers' competitve position!

The Winning Story!

- Huge market opportunity
- It is the Metro Ethernet Solution
- Leverage Ethernet ubiquitous interface
- Leverage Ethernet great economics
- Solve Ethernet QoS, scaling and failover issues