

Fundamental Internet Issues

1

Single-path communication is optimized for low cost.
Cannot support diverse application requirements:
Low latency, high bandwidth, low loss rate, etc.



2

Slow BGP convergence and numerous outages leading to low availability



3

Lack of transparency leading to undetected re-routing, unclear paths



Vision: Advanced Next-generation Public Internet

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- A globe of the Earth is shown with a complex network of white lines and glowing nodes overlaid on it, representing a global communication network. The globe is set against a dark blue background with streaks of light, suggesting a digital or space-themed environment. A yellow sticky note is pinned to the right side of the globe with two red pushpins. The sticky note contains a bulleted list of three items.
- High security & availability
 - Path-aware networking
 - Multipath communication

SCION Overview in One Slide



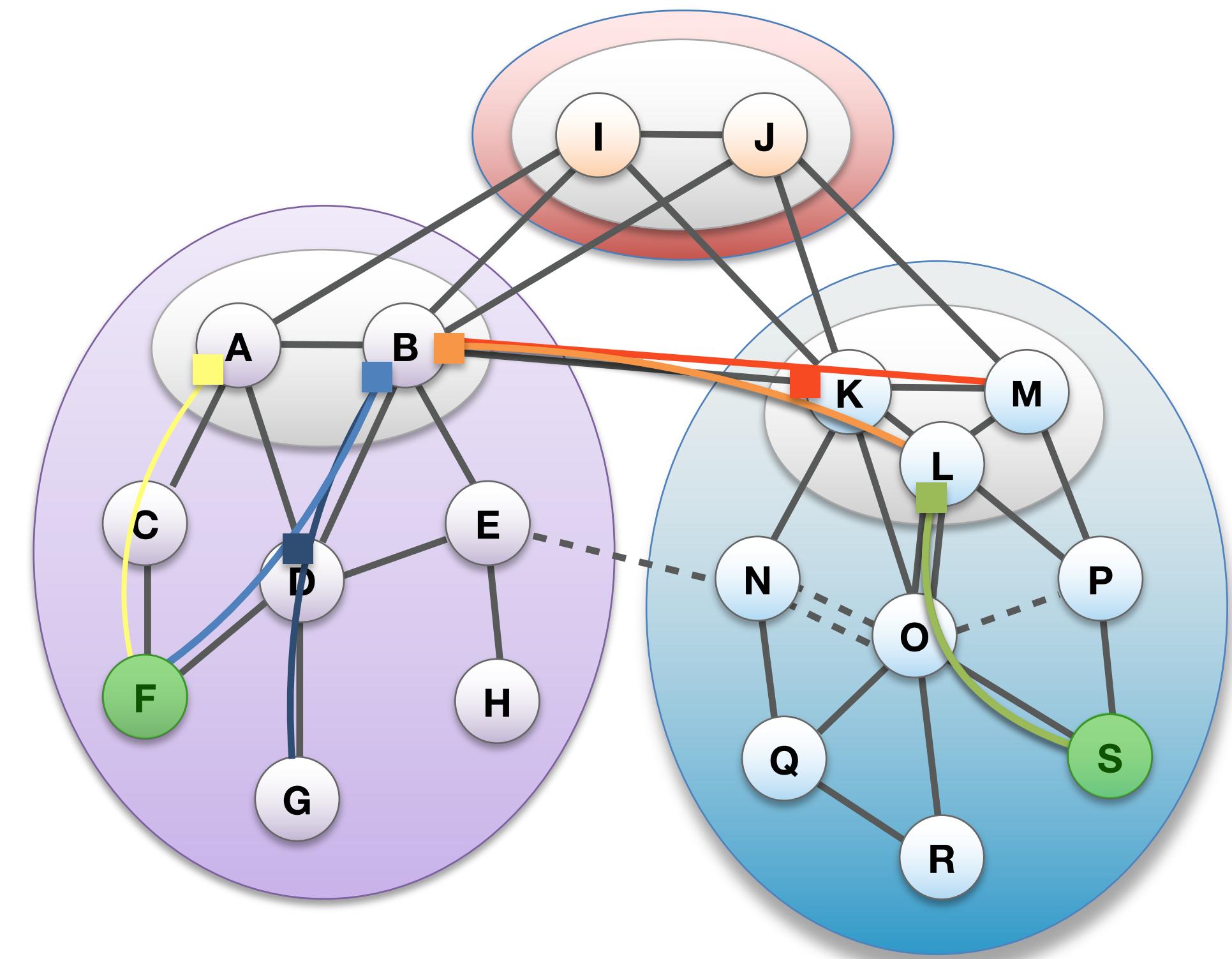
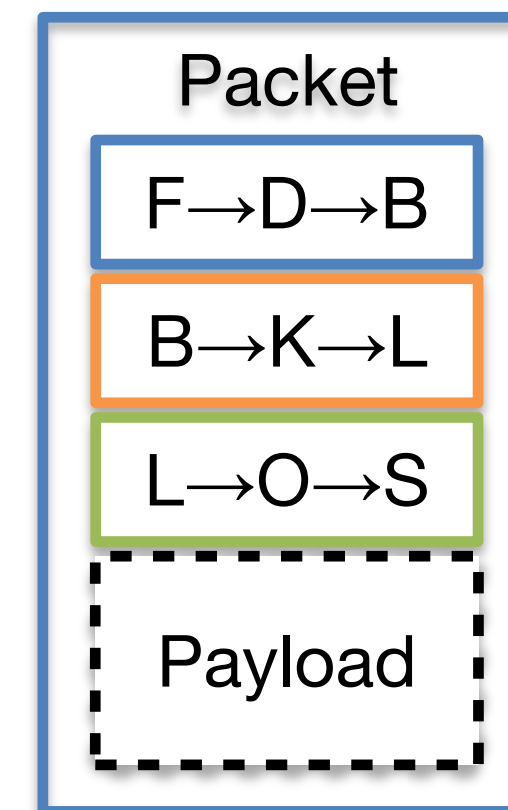
Path-based Network Architecture

Control Plane - Routing

- ❖ **Constructs** and **Disseminates** Path Segments

Data Plane - Packet forwarding

- ❖ **Combine** Path Segments to Path
- ❖ Packets contain Paths
- ❖ Routers forward packets based on Path
 - ▶ Simple routers, stateless operation



SCION Real-world Deployment

- Test deployment with several customers (healthcare, finance, government, education)
- Production traffic flowing over SCION network since Aug 2017
- Expected official offering by several large Swiss ISPs in 2020

