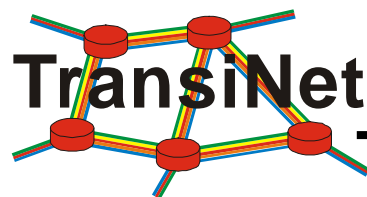


Short Overview of p -Cycles

ITG FG 5.2.3 Treffen

Stuttgart, Germany - November 22, 2001

Dominic Schupke



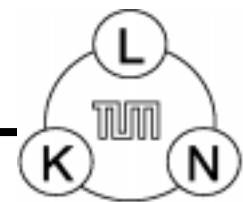
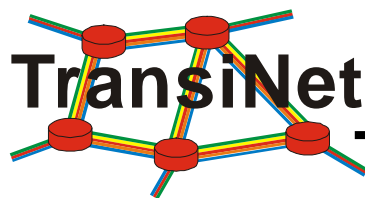
p -Cycles: Introduction

What are p -cycles?

- Preconfigured protection cycles (virtual rings)
- Formed in the spare capacity of the network
- Local recovery (adjacent to failure)
⇒ recovery times of some 10 ms possible
- High degree of node failures and multiple failures survivability

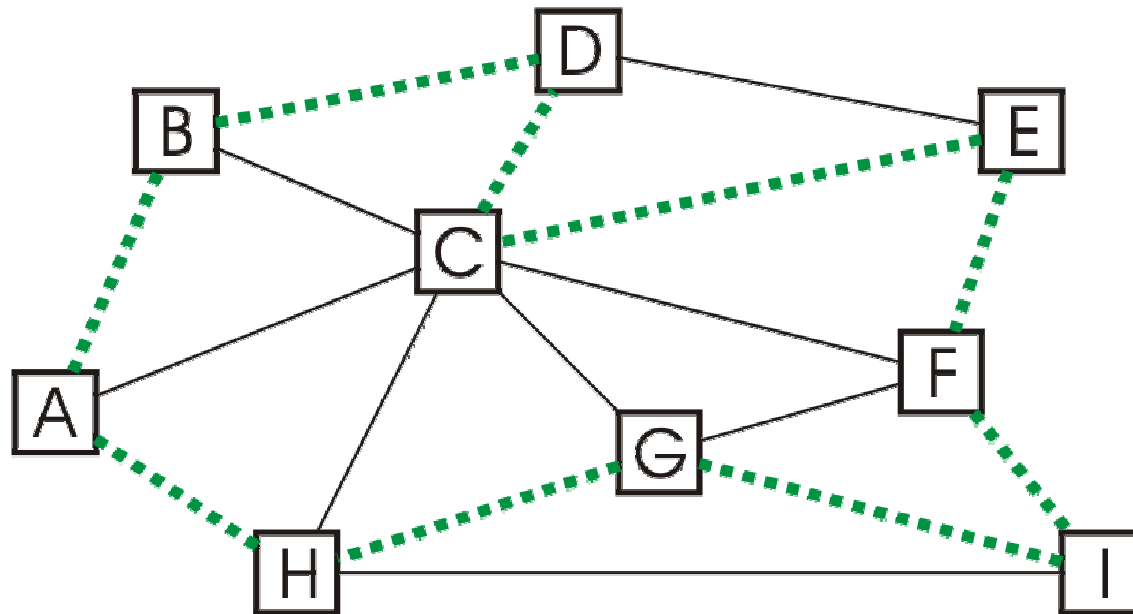
Investigation:

“Speed of rings with the efficiency of a mesh network” ?

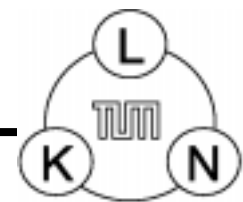
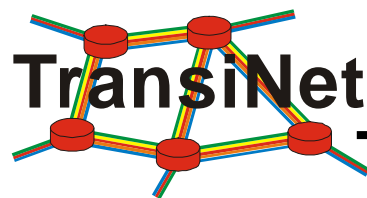


p-Cycles: Protection

- A *p*-cycle:

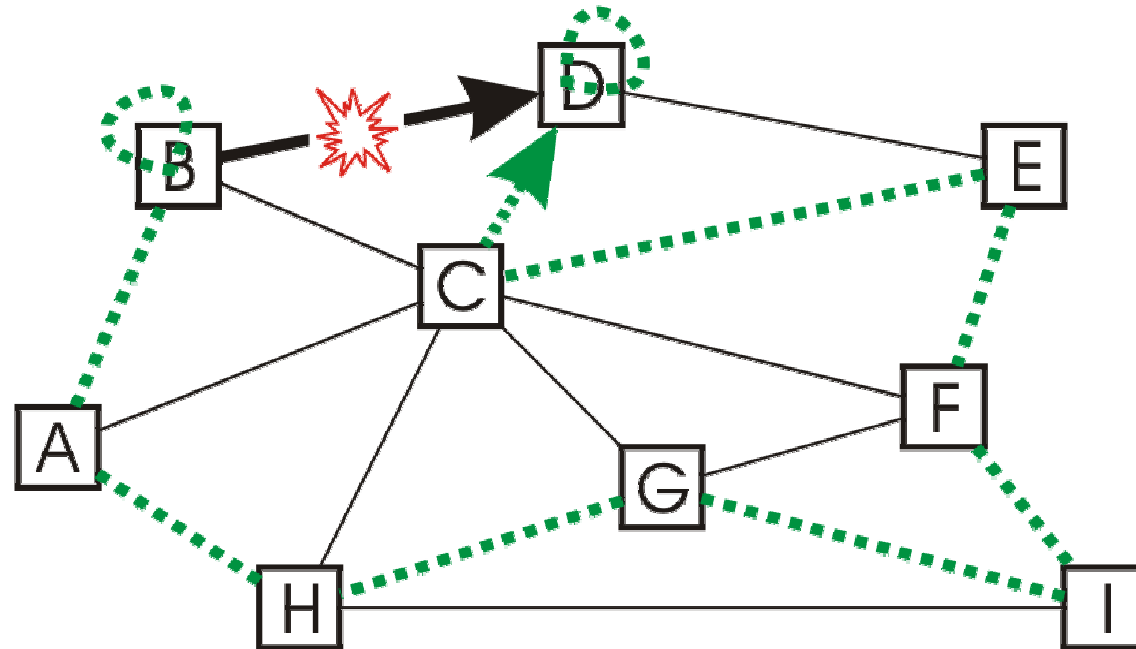


- Network: can be SDH, WDM (ASON), MPLS, IP, ...

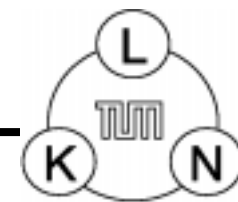


p-Cycles: Protection (cont.)

- Protection of on-cycle links:

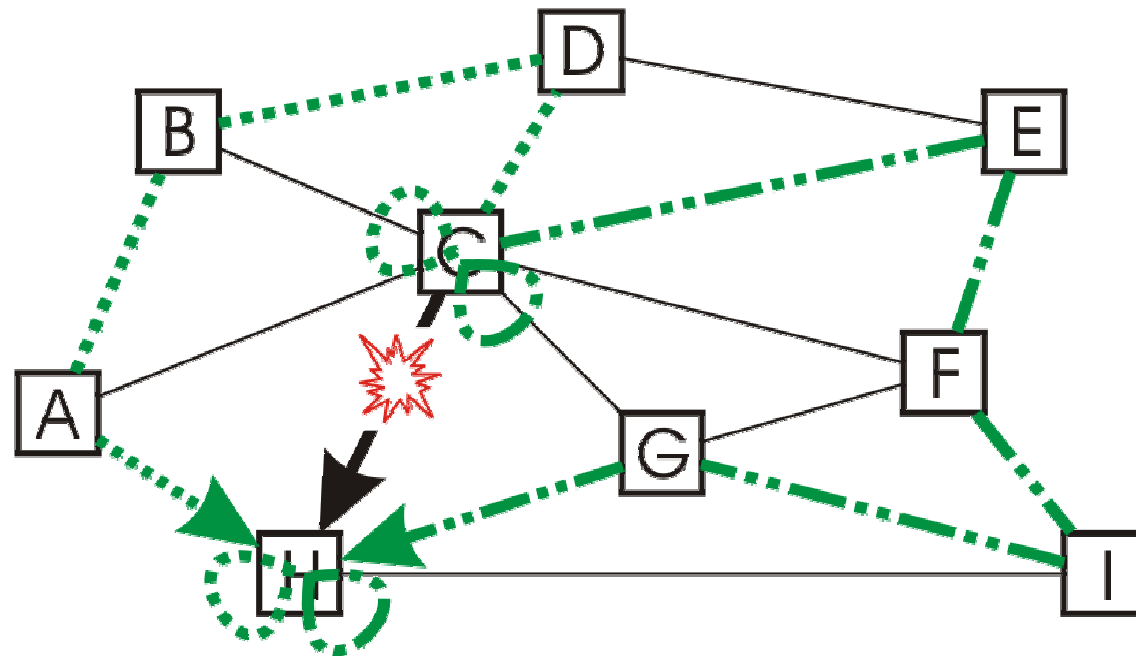


⇒ Number of protected links: 9

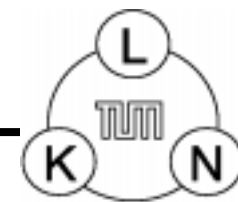


p-Cycles: Protection (cont.)

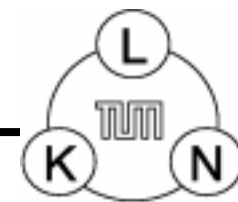
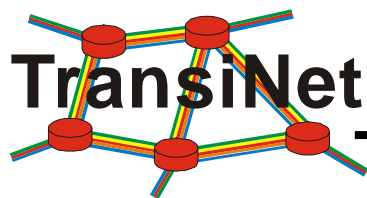
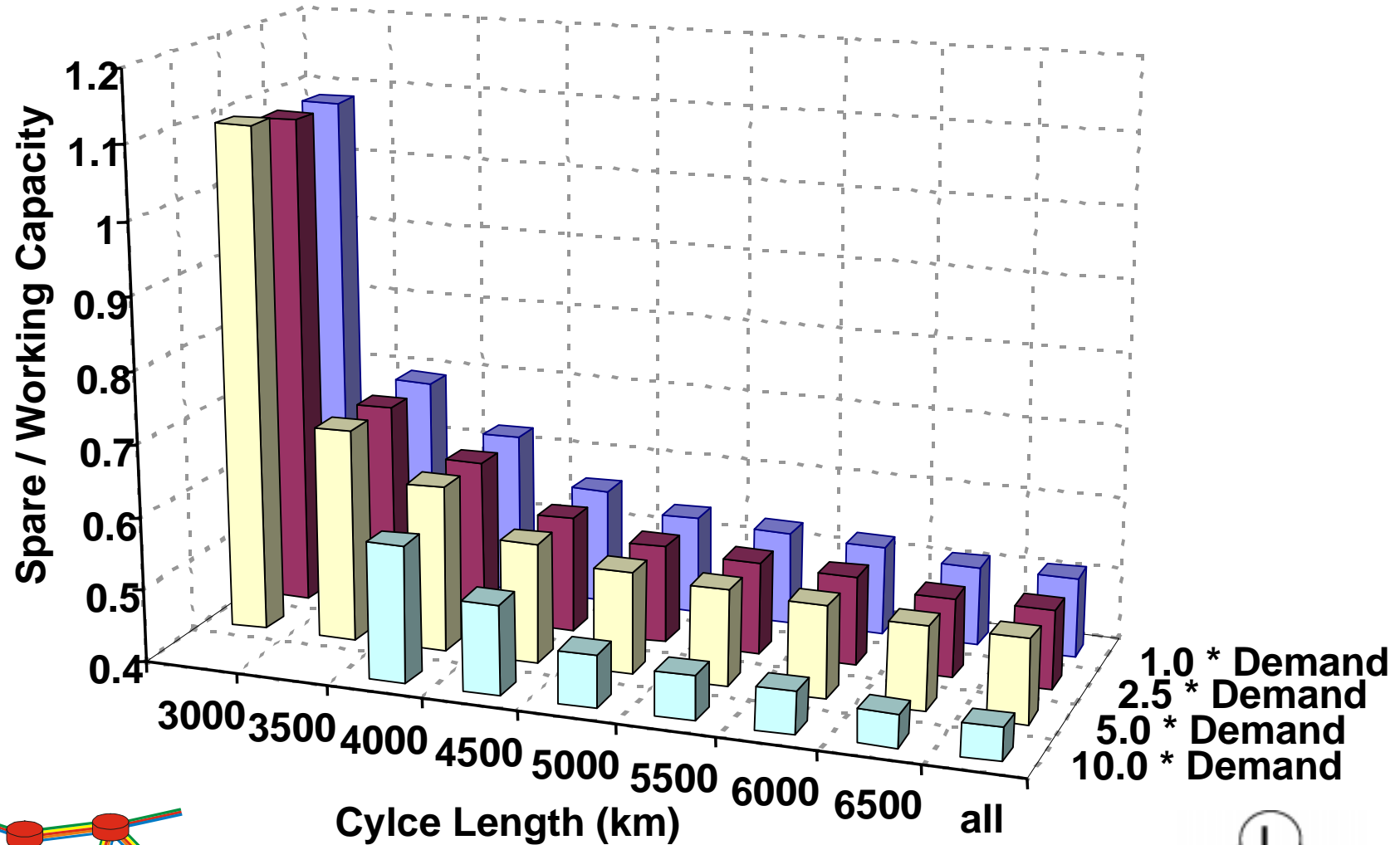
- Protection of on-cycle and *straddling* links:



⇒ Number of protected links: 9 + 8



p -Cycles: Efficiency



Literature

- Schupke, D.A.; Autenrieth, A.; Fischer, T., "Survivability of Multiple Fiber Duct Failures," Third International Workshop on the Design of Reliable Communication Networks (DRCN), Budapest, Hungary, October 7-10, 2001.
- Grover, W.D.; Stamatelakis, D., "Bridging the ring-mesh dichotomy with p-cycles," Second International Workshop on the Design of Reliable Communication Networks (DRCN), Munich, Germany, April 9 - 12, 2000.
- Schupke, D.A.; Gruber, C.G.; Autenrieth, A., "Optimal Configuration of p -Cycles in WDM Networks," submitted to ICC 2002.
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<http://www.transinet.de/>

