

GRNET

Greek Research & Technology Network

http://www.grnet.gr/index_en.html

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Introduction

- GRNET: The Greek NREN
- Interconnects more than 70 institutions
 - Universities & Technological Institutions
 - Research Centers
 - Primary & Secondary schools
- Objectives:
 - Interconnect research communities in Greece
 - Deployment of advanced networking services
 - Promote “e-world”



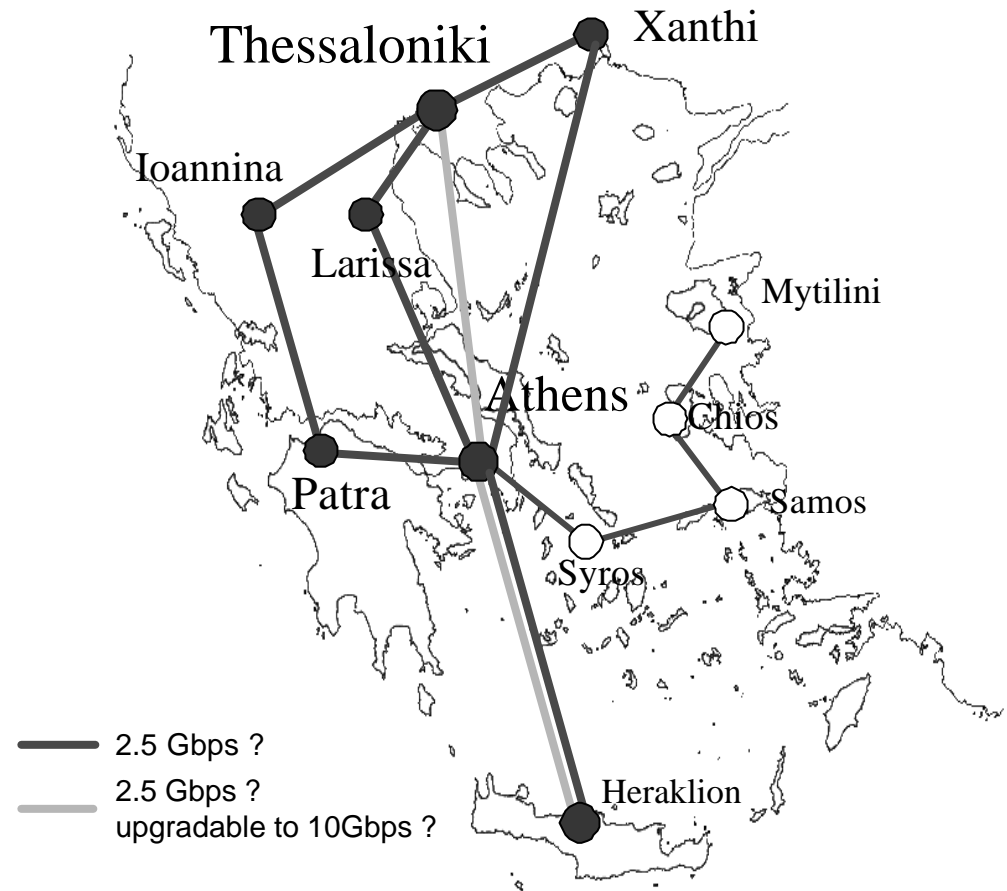
International Collaborations

- GEANT Consortium Member
 - Interconnection 2x STM-4 links
- Trans-European Research and Education Networking Association
 - Video Conferencing & Streaming, Security, Middleware, Networking, IP QoS etc.
- Internet2 International Member
- 6NET IST project
 - Native pan-European IPv6 network
- SEEREN
 - Balkan Regional Network



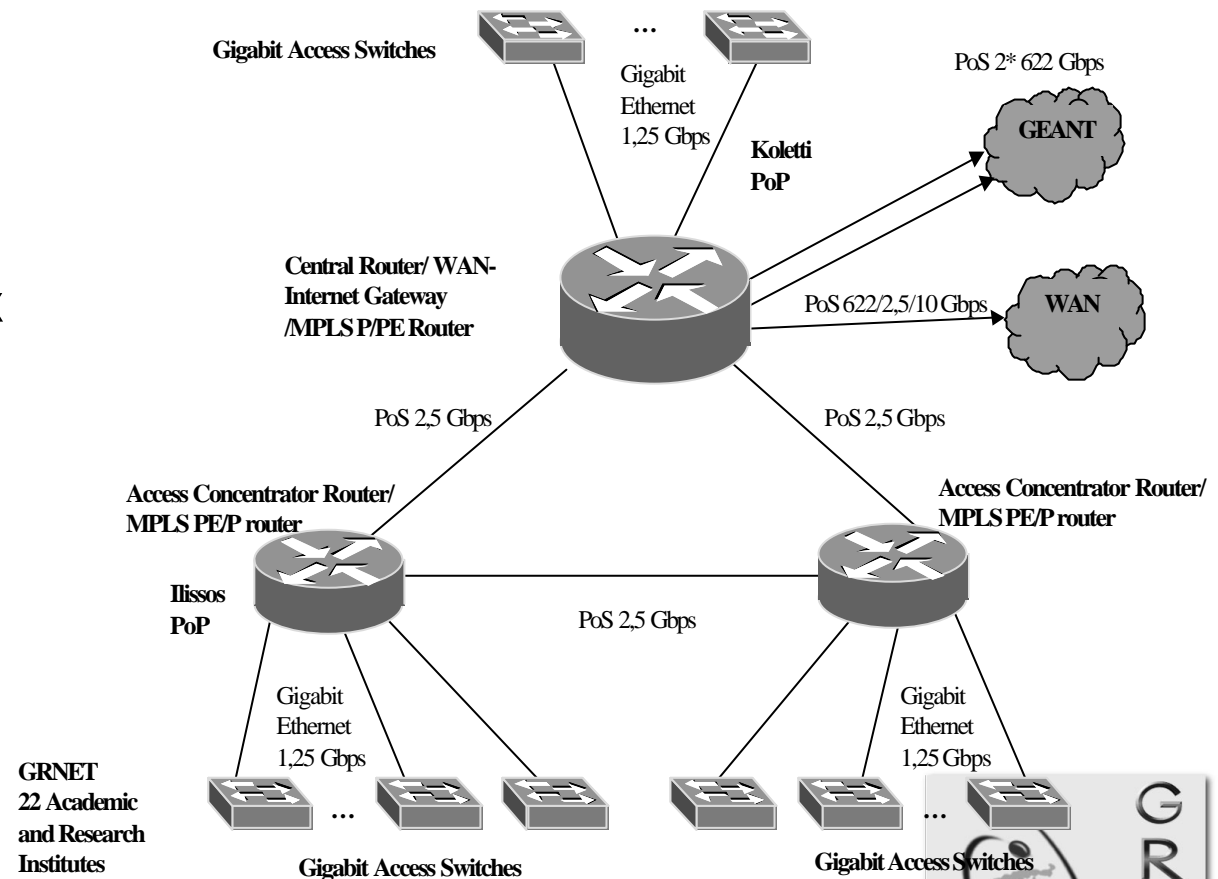
GRNET Network

- GRNET: Current network
 - 155 / 34 Mbps links (Dec2002)
 - ATM technology
 - PoPs in 7 main cities
- GRNET2: Future network
 - Optical DWDM connections
 - 2.5 / 10 Gbps PoS links
 - Gigabit Ethernet for access
 - PoPs in more than 7 cities
 - Advanced Services
 - IP QoS services
 - MPLS VPNs
 - Native IPv6 support



Athens MAN

- Pilot project for GRNET2
 - Over-provisioned network
 - 2.5 Gbps PoS links
 - Gigabit access
- Edge core routers—GSR124xx
 - Increased switching capacity
 - Features supported on hardware (Engine 4+ line cards)
- ... in service since June 2002



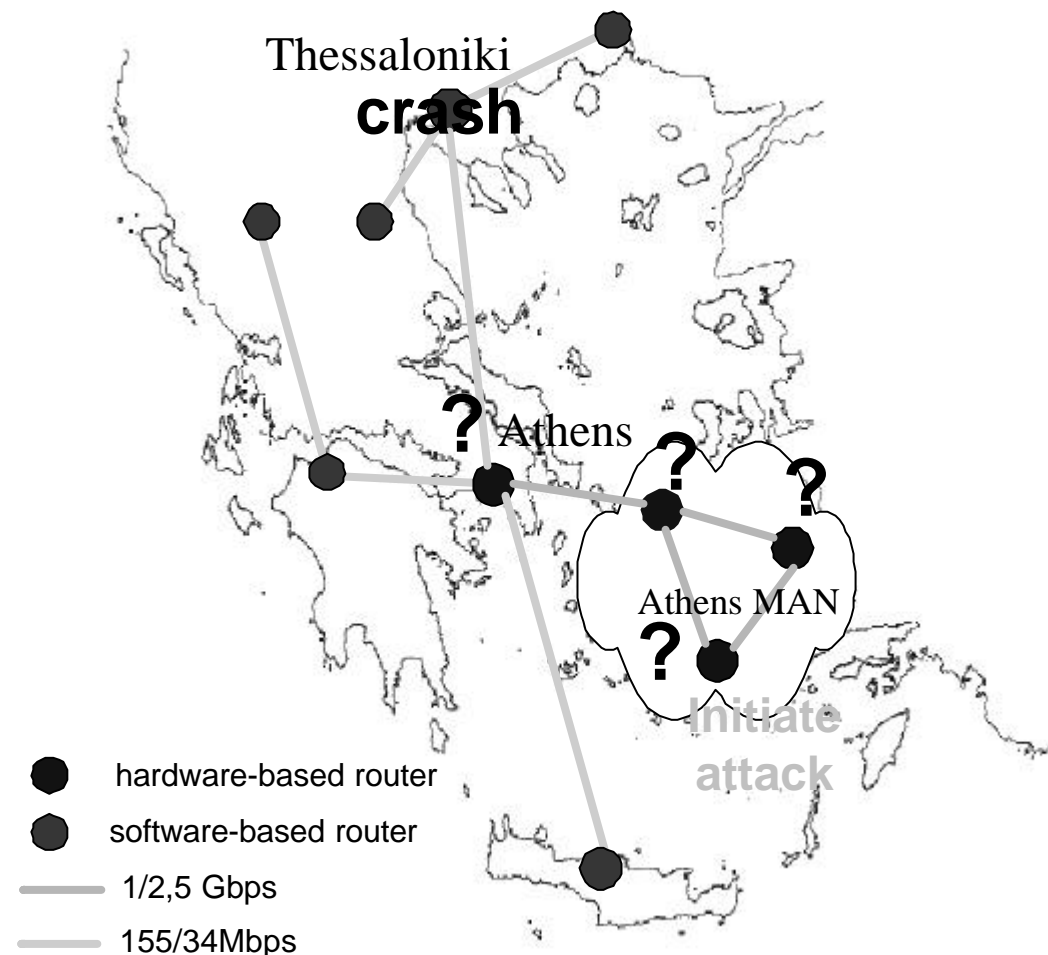
Security in a "Gigabit World"

- Attacks at Gigabit speeds
 - New hazards have emerged!
 - e.g. attacks initiated from labs with gigabit connections can severely degrade services to institutes with low-speed connections
 - Customer edge (CE) routers are still software-based!
 - Hardware failures occurred under DoS attacks
- Features implemented in hardware at core
 - Backbone routers lack needed functionality
 - No flows statistics available
- Advanced services need protection
 - IP QoS services



An example

- An attack is initiated at Athens MAN PoP
- Router in Thessaloniki PoP crashes unexpectedly
- Routers in the middle hops do not provide flow information



GRNET CERT

- Cooperation with other security groups
 - Member of TF-CSIRT
 - Participate to FIRST meetings
- Activities
 - Handling internal incidents
 - Providing security information
 - Training / guidance to network administrators
- Policy
 - Define Obligations / Rights
 - Deploy a common security policy across GRNET domain and its connected campus networks
 - Describe procedures for efficiently dealing with security incidents.



GRNET CERT activities (cont.)

- “Panoptis”
 - Detect and block DoS/DDoS attacks
 - Real-time processing Netflow data
 - open-source tool
 - [source code \(0.1.1 release\)](#)
 - <http://panoptis.sourceforge.net/>
 - Evaluation tests in Athens MAN

Questions?

- For more information:
 - [mailto: grnet-cert@grnet.gr](mailto:grnet-cert@grnet.gr)
 - phone: +30 10 6492056
 - http://www.aegean.gr/grnet-cert/index_en.htm

