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# VIOLA

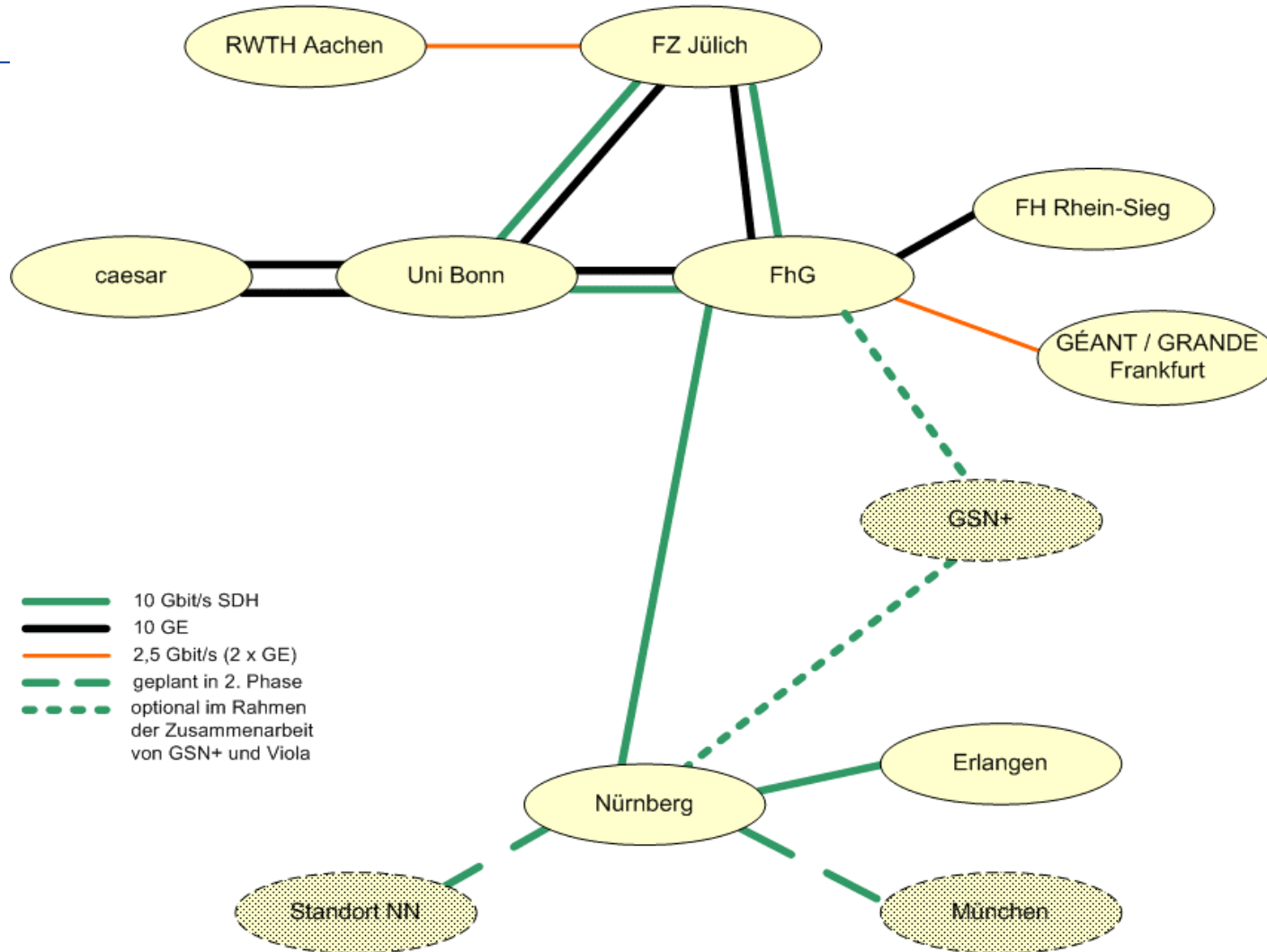
## Vertically Integrated Optical Testbed for Large Applications

Juergen Rauschenbach, DFN-Verein  
[jrau@dfn.de](mailto:jrau@dfn.de)

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- Industry and science cooperation, DFN-Verein is project coordinator
  - funding from BMBF, kind of “national IP”
  - Partners: Alcatel SEL AG, Siemens AG, T-Systems International GmbH, Fraunhofer-Gesellschaft (IMK, SCAI), FZ Jülich, RWTH Aachen, Uni Bonn, FHS Bonn-Rhein-Sieg (BRS), Stiftung Caesar
  - Associated partner: GasLINE, ...
  - project time: 3 years
    - planned start Q2 2004
    - funding volume: 11 MEuro (planned)

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- Installation of a **vertical** testbed for integrated IP+Optical technologies plus some middleware and a set of real apps with high and dynamic communication requests
  - Deployment, interoperability test and evaluation of recently developed opto-electrical und GE-Switching network components
  - Bandwidth on demand using signalling
  - Preparation of the WiNng (X-WiN) of the DFN-Verein
    - call for tender 2004, market investigation started

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- Installation and operation of the test network
    - network management, link switching and user support, measurement
    - usage of state-of-the-art technology in OEO-Switching (SDH), GE-Switching, CWDM/DWDM
  
  - research and development items
    - interworking of IETF GMPLS and ITU ASON based OTNs
    - Signalling: MPLS, VPLS, H-VPLS on 10 GE switches
    - dynamic signalling at OEO switches and routers (GMPLS)
    - standardised interfaces: OIF UNI, I-NNI, E-NNI
  
  - VIOLA lab
    - different test scenarios and measurements
    - interoperability of different brands, new partners welcome
    - future oriented transmission technologies (40Gbps, Long-Haul DWDM, OTH, all-optical networks)



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- Integration of real users and applications based on standardised interfaces with an option to integrate more applications later (national/international)
  - application criteria: in time and data volume varying demands for optimal testing of the network solutions
  - Provide an environment to generate new ideas for application scenarios based on the results and growing functionality of the underlying networks
  - no state-of-the-art MW development, just what we need to run the applications in a distributed cluster

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- Simulation and Visualisation (3 apps)
    - 5 PC-Cluster with Myrinet as internal network, Shared Memory Multiprocessor nodes (SMP), 14 to 60 CPUs each
    - PC-Clusters are linked with each other in a 4 to 12 GE links based meshed topology
    - integration of (existing) real supercomputers
  - VIOLA-Support (dedicated middleware components)
    - UNICORE compute Grid, add. Components:
      - Meta scheduler with ressource mgmt.
      - MetaMPICH library for distributed applications
  - Virtual Reality
    - collaborative visualisation of large atmospheric data to distributed working groups with heterogenous computing technology

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- EGEE - Enabling Grids for E-science in Europe
    - international Grid-Infrastructure based on existing networks
  - DFN participation in the testbed call 15.10.03 FP6:
    - **Muppet** - MUlti-Partner EuroPEan Testbeds for Research Networking
      - existing ASON/GMPLS testbeds (TSI (DE), TILab (IT), Telefonica (ES) und Acreo (SE)) will be connected and serve as platform for the test of dynamic services in the Grid environment
      - NRENs and Operators, supported by Dante
    - **Grande** - GRid Aware Network Development in Europe
      - status is unclear, waiting position?
  - GÉANT2 (JRA1, JRA5, SA3)