

*EdiNet*  
*(E-learning in Distributed Data  
Network Laboratory)*

EU Life Long Learning –programme  
Erasmus / Virtual Campuses  
10/2007-9/2009



# Objectives and outcomes

- Create common “project tools”
  - WEB-pages: <http://svc-edinet.eu/>
  - Project management tool: <https://www.svc-edinet.eu/egroupware/login.php?cd=5>
- analyse common pedagogical principles for blended learning
  - Curricula analysis
  - Pedagogical model and implementation to the blended learning in SVC (means labs)
  - Competence analysis for using SVC and study blended learning modules
- promote virtual mobility by implementation of Semi-Virtual Campus (SVC; means virtual campus where actually study will be done with the real equipment via network connection)
  - Common management system for access, authentication and reserve for SVC
    - [http://edinet.cs.vsb.cz/index.php/SVC\\_Technical\\_Infrastructure\\_Architecture\\_Design](http://edinet.cs.vsb.cz/index.php/SVC_Technical_Infrastructure_Architecture_Design)
  - Remote management system for each local SVC
  - Blended learning modules (BLM)
    - Each partners (except Poland) produces one BLM
    - Training material for using SVC's



# Objectives and outcomes

- enhance Open Education Resources (OER) by sharing, integrating, and mutually improving local resources (including knowledge) and best practices by establishing SVC
  - Different variations (locally or from a distance)
    1. Course
    2. Students
    3. Teachers
    4. Equipment
- to promote the usage of expensive laboratory environment through an innovative blended eLearning system in the field of data network technology
  - Piloting SVC's and BLM's, remote management, reserve and using of distributed resources, training material and pedagogical model



# EDINET Partners

- IT-FI
  - Jyväskylä University of Applied Sciences, School of Information Technology
- VSB-CZ
  - VSB Technical University of Ostrava, Faculty of Electrical Engineering and Computer Science
- HSBE-DE
  - University of Applied Sciences Bremen, Department of Electrical Engineering and Computer Science
- FHJ-AT
  - University of Applied Sciences FH Joanneum, ITM / ASE
- WSHE-PL
  - The Academy of Humanities and Economics in Lodz
- TUKE-SK
  - Technical University of Kosice, Faculty of Electrotechnical Engineering and Informatics
- TEC-FI
  - Jyväskylä University of Applied Sciences, Teacher Education College
- UBE-CH
  - University of Bern, IAM



# Workpackages

- **WP0: Administration**
  - Coordinator School of IT, Jyväskylä University of Applied Sciences, Finland
- **WP1: Pedagogical framework for e-learning**
  - Coordinator TEC Jyväskylä University of Applied Sciences, Finland
- **WP2: Blended learning modules activities**
  - Coordinator Technical University of Kosice, Slovakia
- **WP3: Semi-Virtual Campus**
  - Coordinator Technical University of Ostrava, Czech
- **WP4: Supporting competences**
  - Coordinator TEC Jyväskylä University of Applied Sciences, Finland
- **WP5: Training Program**
  - Coordinator University of Applied Sciences, Bremen
- **WP6: Piloting**
  - Coordinator University of Applied Sciences FH JOANNEUM, Graz
- **WP7 Quality and Evaluation**
  - Coordinator TEC Jyväskylä University of Applied Sciences, Finland
- **WP8 Dissemination**
  - Coordinator The Academy of Humanities and Economics in Lodz, Poland
- **WP9 Exploitation**
  - Coordinator The Academy of Humanities and Economics in Lodz. Poland



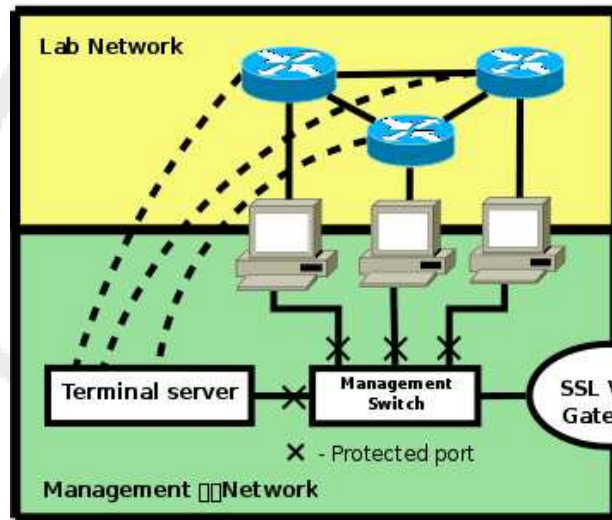
# Semi-Virtual Campus

- Allow equal access of users of all partners to resources of other partners (tasks and lab equipment) – OER principle
- SVC Components
  - Common Portal
    - Single Sign-On for role based authentication, autorisation and accounting
    - Reservation of learning modules in selected partner labs
    - VPN CA for generation of one-time passwords for VPN access to labs
  - Management Network in each partner lab.
  - Lab environment in each partner lab with local learning modules

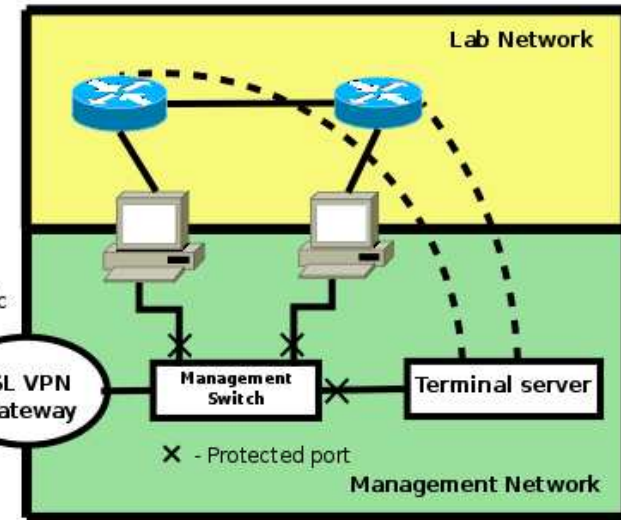


# Remote Management of Lab Devices

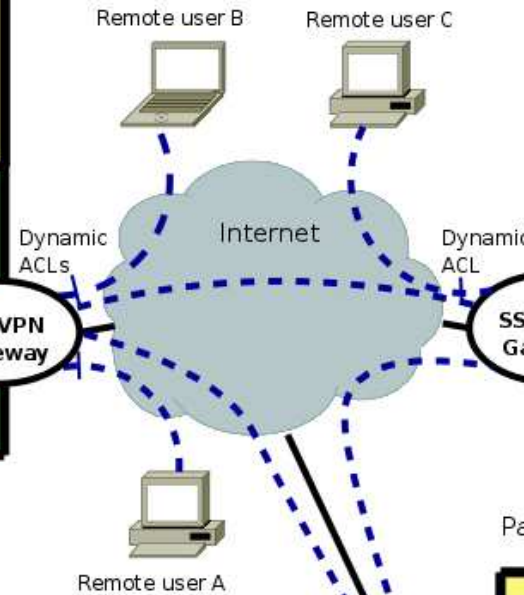
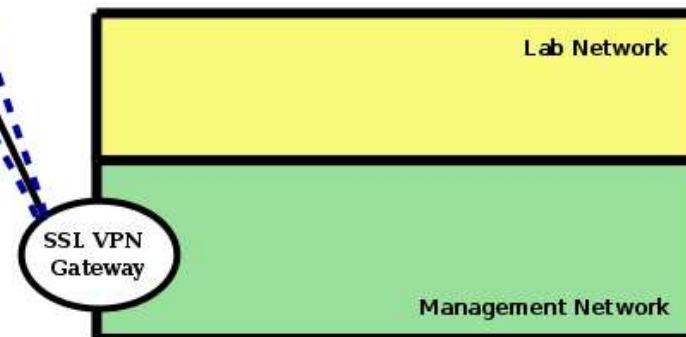
Partner 1 Lab



Partner 2 Lab



Partner 3 Lab



# Blended learning modules

- **TCP congestion control**
  - University of Bern
- **Routers and Routing Basics**
  - Technical University of Kosice
- **Link-state routing protocols / OSPF**
  - University of Applied Sciences FH Joanneum
- **BGP – Basic Routing and Route Optimization**
  - VSB Technical University of Ostrava
- **MPLS core network**
  - Jyväskylä University of Applied Sciences
- **Cracking for Fun and Education: E-Learning on Network Security**
  - University of Applied Sciences Bremen



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# Example: NETS-X

Cracking for Fun and Education, E-Learning on Network Security



# NetS-X – Motivation

**Network and Information Security know how is badly needed**

## **Problem:**

- Topic is highly technical and often considered as boring
- Security related problems are often difficult and hard to grasp
- Technologies are too complex to understand by one person alone
- Education often lacks on practical orientation because of complexity and cost

## **Solutions:**

- Using a game to motivate students by fun and competition
- Using a reality like business network on real hardware
- Share and cooperate with Universities and Developers to reduce cost and complexity



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# NetS-X – Characteristics

- Remote usability
- 2D-Game that simulate a company with business related network and security problems.
- Self learning environment
- Self assessment environment
- Multi-user capable
- Easy to extend with new scenarios
- shooting with real guns
  - Real network on real hardware in the background
  - Using real tools and technologies to solve tasks of the 2D-Game
  - Learn how hackers work and how to defend against them.





Thank you for your attention!

*Any questions?*

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