

# EDUROAM @ UNIVERSITY OF RUSE

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# About University of Ruse

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- Established in 1945
- 700 faculty and staff
- 10000 students
- 8 faculties and subsidiaries in Razgrad and Silistra

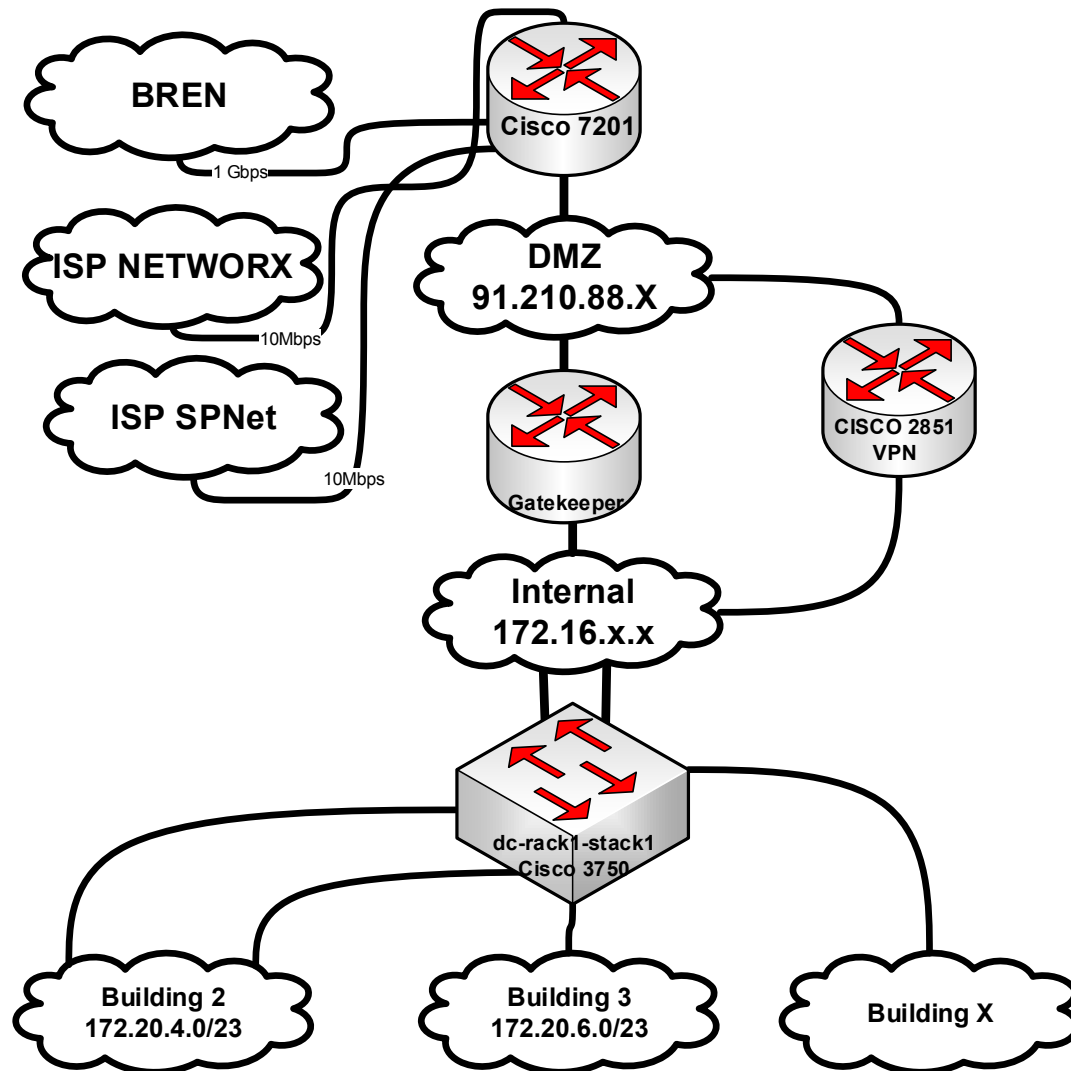
# Physical structure



# External connectivity

- ❑ FO to 3 providers
  - ❑ BREN
  - ❑ SPNET
  - ❑ Networx
- ❑ AS48155
- ❑ PI address space - 91.210.88.0/22
- ❑ IPv6 - 2001:4b58:30::/48

# Network structure



# Server and Network equipment

- ❑ 85 servers
  - ❑ 70/30 virtual/physical
- ❑ 1500 PCs and laptops
- ❑ 73 manageable switches
- ❑ 80 thin clients
- ❑ 24 kiosks
- ❑ 30 security cameras

# Logical structure

- ❑ uni-ruse.bg domain – 1000 faculty, staff
- ❑ stud.uni-ruse.bg subdomain – 10000 students
- ❑ subdomains for individual departments
  - ❑ ecs.uni-ruse.bg
  - ❑ ami.uni-ruse.bg
  - ❑ iits.uni-ruse.bg

# Network services

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- ❑ Official web-site, intranet
- ❑ E-mail, file services
- ❑ DNS, DHCP, WINS, NTP, FTP, HTTP Proxy
- ❑ LDAP, RADIUS, VPN
- ❑ WSUS, WDS, Antivirus
- ❑ Web hosting, colocation
- ❑ Certificate authority
- ❑ Jabber instant messaging



# IT personel

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- ❑ 5 system administrators
- ❑ 3 hardware/network specialists
- ❑ 3 FTE helpdesk
- ❑ 7 web and application developers

# Before eduroam

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- ❑ iZone
  - ❑ Government funded project from early 2000s
  - ❑ Manual account creation
  - ❑ Lack of stability
  - ❑ Poor security

# Eduroam implementation

- Cisco WLC4400 wireless controller
  - LWAPP, CAPWAP
  - Centralized management
  - Better roaming experience
  - Traffic to controller tunneled over a single VLAN
  - Easily set up new WLANs
- 55 Cisco Aironet APs
- SOHO class wireless routers in branch offices

# Eduroam implementation

- FreeRADIUS 2.0
- WPA2/AES, PEAP (MS-CHAPv2)
- Authentication against Active Directory

- Domain trust

```
authorize {
```

```
...
```

```
if ( "%{Realm}" == "uni-ruse.bg" ) {
```

```
    update control {
```

```
        MS-CHAP-Domain := "UNI-RUSE"
```

```
    }
```

```
}
```

```
if ( "%{Realm}" == "stud.uni-ruse.bg" ) {
```

```
    update control {
```

```
        MS-CHAP-Domain := "STUD"
```

```
    }
```

```
}
```

# Security measures

- Client isolation
- Firewall restrictions (port 25)
- Dynamic VLAN assignment

```
# VLAN for stud.uni-ruse.bg users
```

```
DEFAULT Realm == "stud.uni-ruse.bg"
```

```
    Tunnel-type = VLAN,
```

```
    Tunnel-Medium-Type = 802,
```

```
    Tunnel-Private-Group-ID = 31
```

```
# VLAN for uni-ruse.bg users
```

```
DEFAULT Realm == "uni-ruse.bg"
```

```
    Tunnel-type = VLAN,
```

```
    Tunnel-Medium-Type = 802,
```

```
    Tunnel-Private-Group-ID = 29
```

# Promotion and documentation

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- Web-site with instructions
- Windows installer
- Promo materials
- Facebook page

# Future plans

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- ❑ RadSec
- ❑ IPv6
- ❑ QoS
- ❑ Users' experience simplification
- ❑ Coverage expansion – IdPs and SPs
- ❑ Additional services on top of eduroam

THANK YOU!

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