



Cisco Expo  
2008

## Connected Campus of the University Goce Delcev



**Zlatko Brezovski , Neocom**

**MSc. Zoran Zdravev, University Goce Delcev**

# Neocom Facts and figures



- Established in May 1990 as shareholder company.
- Complete ICT Solution Provider
- In 2002 Neocom opened own Business Center.
- Branch office in Bitola
- 46 Employees
- Long term partnership with leading vendors
- Cisco Partner since 1999, Premier Partner since 2007

# Directions in certification & specialization

## Current specializations

- Advanced Routing & Switching
- Advanced Security
- Advanced Unified Communications
- Advanced Wireless LAN
- Express Foundation
- ATP - MDS Fabric Switching

## Current certified professionals

- CCSP , CCVP, CCNP
- CCDA x 4
- CCNA x 6
- CSE x 3

# Technology Is Key To Development

“ The two fundamental equalizers in the global economy are the Internet and **education**. The Internet is creating unprecedented opportunities for businesses, individuals and governments and the winners will be those with the right skills and knowledge to compete.”

John Chambers  
President and CEO  
Cisco Systems, Inc.



# 3-Step Strategy To Transforming Higher Education

Step 1:

**CONNECT**

Build a global campus that ensures physical and virtual secure access to educational resources and personnel

Step 2:

**ENABLE**

Move to student-centric teaching and learning

Step 3:

**TRANSFORM**

Expand innovation to create a true 21st century college, a lifelong “campus without walls”

# 3-Step Strategy – ICT Implications

## Step 1:

### **CONNECT**

#### **Enable Anytime, Anywhere Access**

Improve collaboration and provide continuous access to information and resources by students, faculty, and staff--anywhere, at any time with secure wireless access.

#### **Create Intelligent Buildings**

Deliver all building services over a single, centrally managed campus data network to reduce costs, increase safety and security, and support new services that enhance campus life.

## Step 2:

### **ENABLE**

#### **Create a Virtual Campus for Remote Learning**

Reach students anywhere, any time, by blending fully interactive and recordable audio, video, and Web conferencing capabilities.

#### **Protect Staff & Student Data and Intellectual Property**

Provide comprehensive protection with an integrated network security solution that includes secure connectivity, adaptive threat defense, and trust and identity management capabilities.

## Step 3:

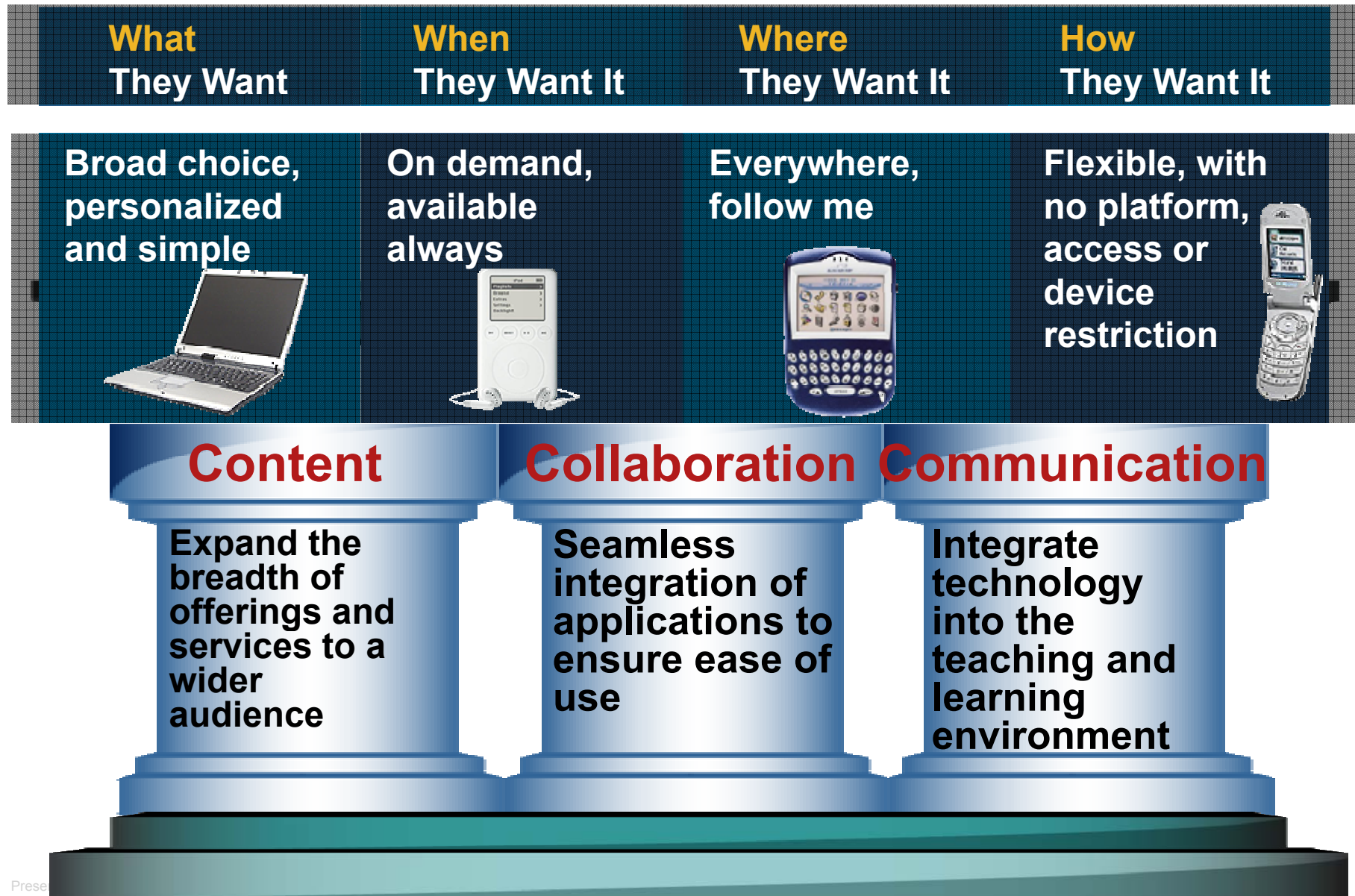
### **TRANSFORM**

#### **Integrate Technology for Future Growth**

An integrated voice, video, and data network is a solid foundation for offering advanced services to help recruit and retain students and faculty, and to extend a school's reach into the community.



# Students Expect Technology



# Connected Campus

Business  
Issues

**Academic Excellence** - Global competition/globalization of learning & research, creating leaders of tomorrow, university without walls, innovation  
**Administrative Efficiency** – Offer scalable services that address highly diverse needs of different colleges & disciplines, cost effectiveness

Education  
Applications

## Virtual Teaching & Learning Platform

- IP Video for Education
- Virtual Classroom
- Content Delivery Network

## Smart Campus

- Campus Connect (CCRE for Edu)
- Campus Secure
- Wireless Campus
- Physical Security Solutions

## Education Network Platform

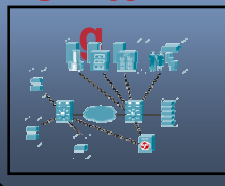
Mobility



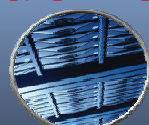
Security



Routing  
Switchin



Data Ctr  
& SANs



Unified  
Comms



NRENs



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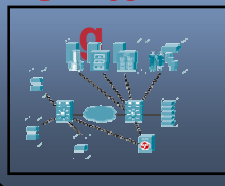
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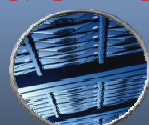
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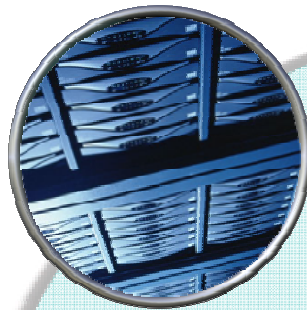
NRENs

IT  
Architecture

# Education Network Platform

## Components and Characteristics

**Storage  
Computing  
for Research  
Labs and  
Data Centers**



**Virtualized  
Network  
Services**



**Collaborative  
Applications for  
Faculty, Students  
& Administrators**

**Resilient**

**Interactive**



**Mobility,  
LANS,  
WANS**



**Responsive**

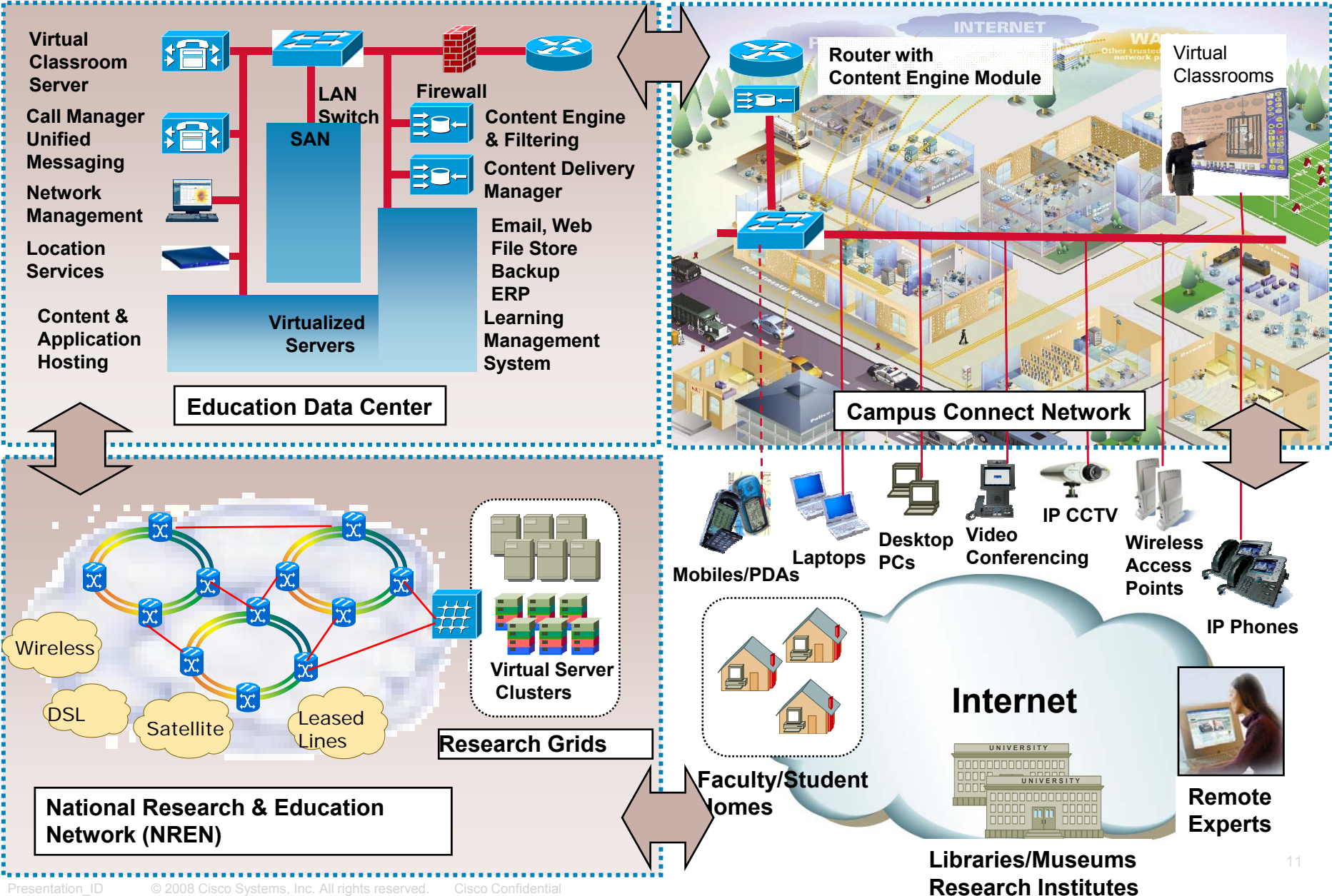
**Protected**



**Secure  
Student  
Records &  
Research  
Data**

**Education Network Platform  
Solid Architectural Foundation**

# Education Network Platform



# What is Cisco's Network Platform for Education?

- An optimized network architecture for the education sector.
- The foundation for a rich & highly scalable Connected Learning environment enabling real-time academic research, collaboration, experimentation and discovery





# Education Network Platform: Cisco Differentiators



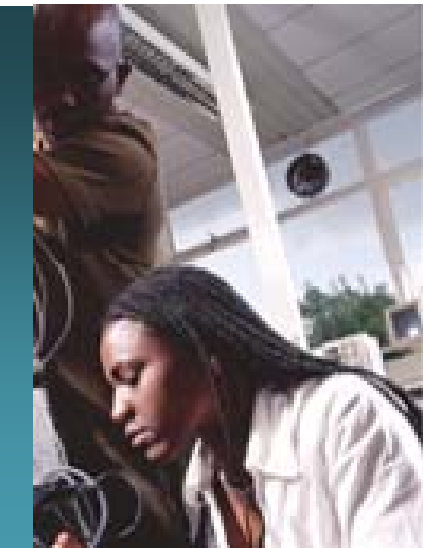
**Unique network-centric approach** differs from server-based architecture.

**Industry-leading scalability** with virtually unlimited capacity for ingest, storage, and streaming.



**Non-stop service availability** by allocating resources across all Content Delivery Engine based on subscriber demand.

**Exceptional network efficiency** by delivering any content from ingest to play within 300 ms.



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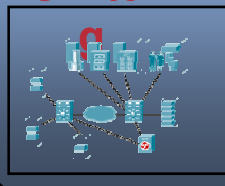
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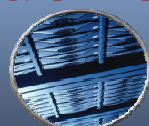
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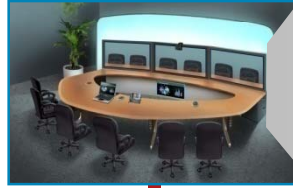
Unified  
Comms



NRENs



## Virtual Research Communities



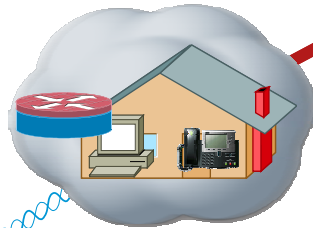
## Virtual Learning Communities



## Satellite Campus



## Main Campus



## Home



## Virtual Learning



## Any Time, Any Where, Any Content and Device



## Dorm

# IP Video Solution

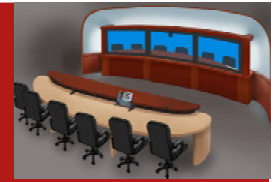
- Delivers educational video content live and on demand to classrooms anywhere.
- Addresses multiple learning styles by using a technology that enables a visual and aural learning experience.
- Enables faculty & students to communicate and collaborate more effectively with geographically dispersed audiences
- Provides for sharing of resources through digital storage and easy recall of lectures and course materials.



# Video over IP Delivery Models



**TelePresence**



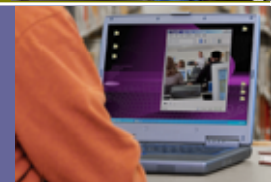
**Unified Conferencing**



**Digital Signage**



**Live Webcasting**



**Video on Demand**



**Cisco Network**



# Универзитет „Гоце Делчев“

- Идеја стара повеќе од 30 години
- Основан 27 март 2007
- Прва студиска година 2007/2008
- 14 факултети и 3 институти
- Интегриран универзитет, како и најголем дел од универзитетите во Европа

# Универзитет „Гоце Делчев“

- Повеќе од 5500 студенти
- 95 професори,
- 142 асистенти,
- 97 административен и помошен персонал
- Објекти со повеќе од 25000 м<sup>2</sup> корисен простор



# Факултет за информатика – јули 2007



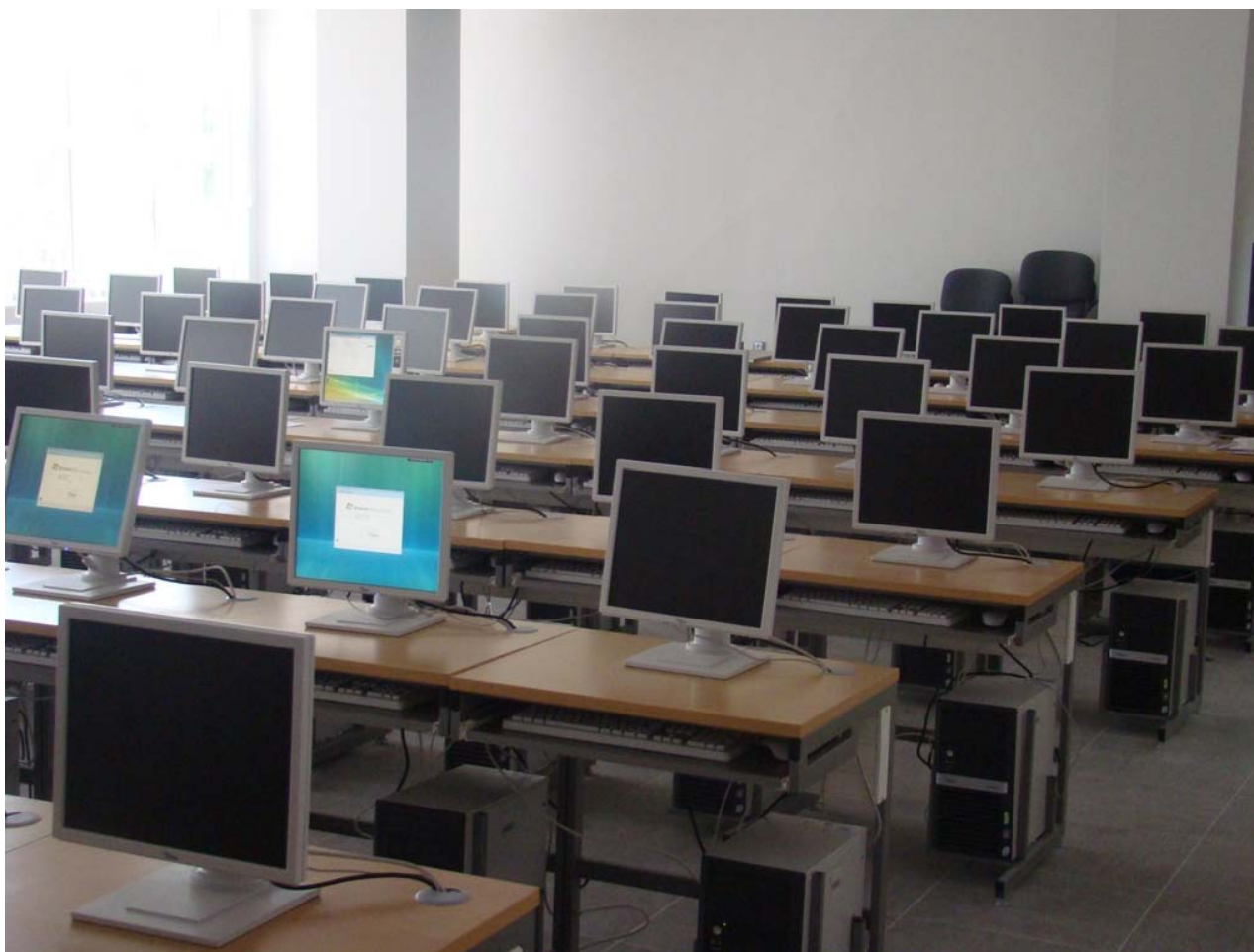
# Факултет за информатика - јули 2007



# Факултет за информатика - мај 2008



# Факултет за информатика – мај 2008



# ICT Инфраструктура...

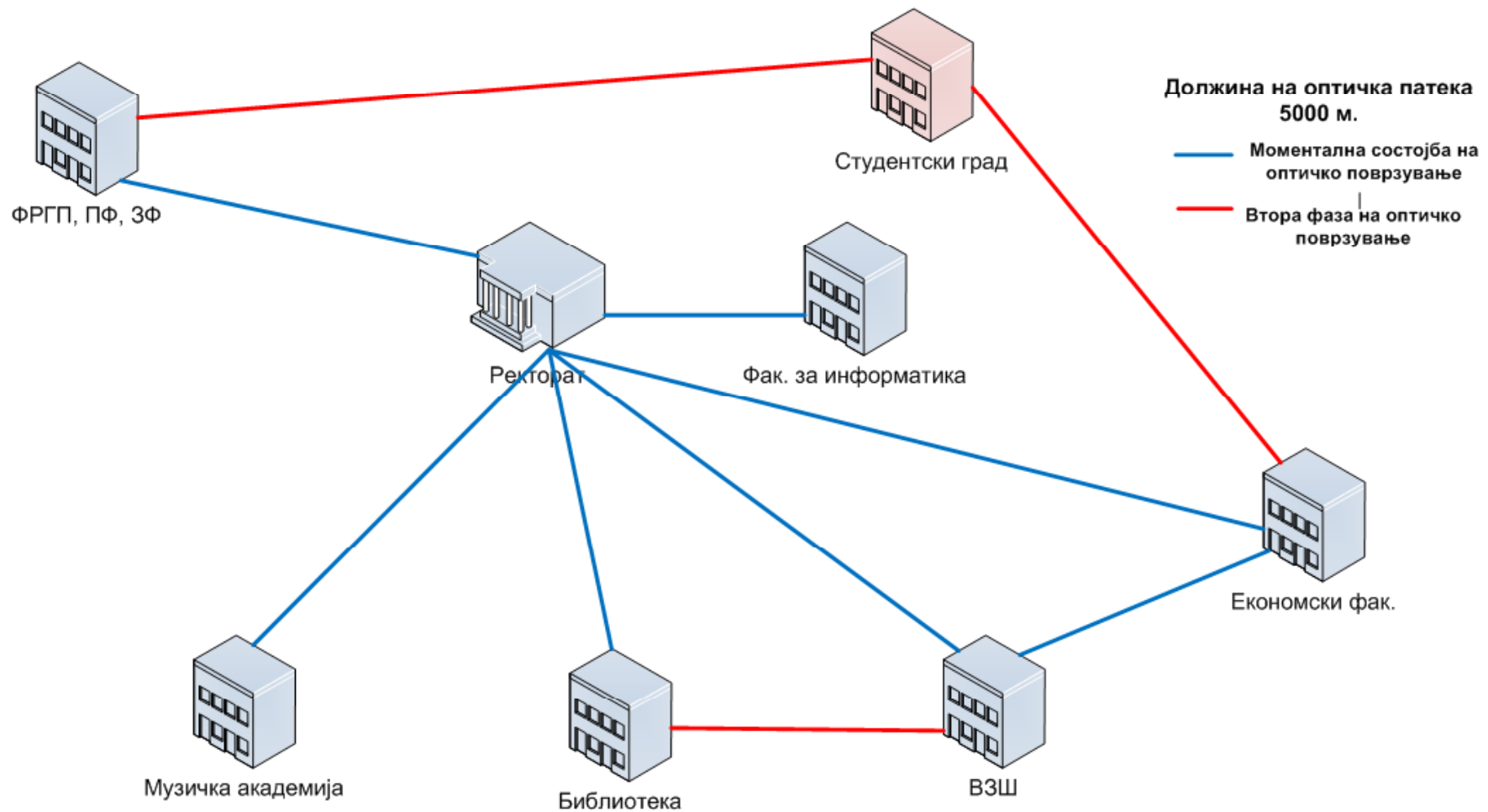
Во јули 2007 започнавме со планирање.

Баравме највисоки стандарди на светско ниво

- Servers, Data storage
- Network equipment
- VoIP
- Software

# УГД – WAN

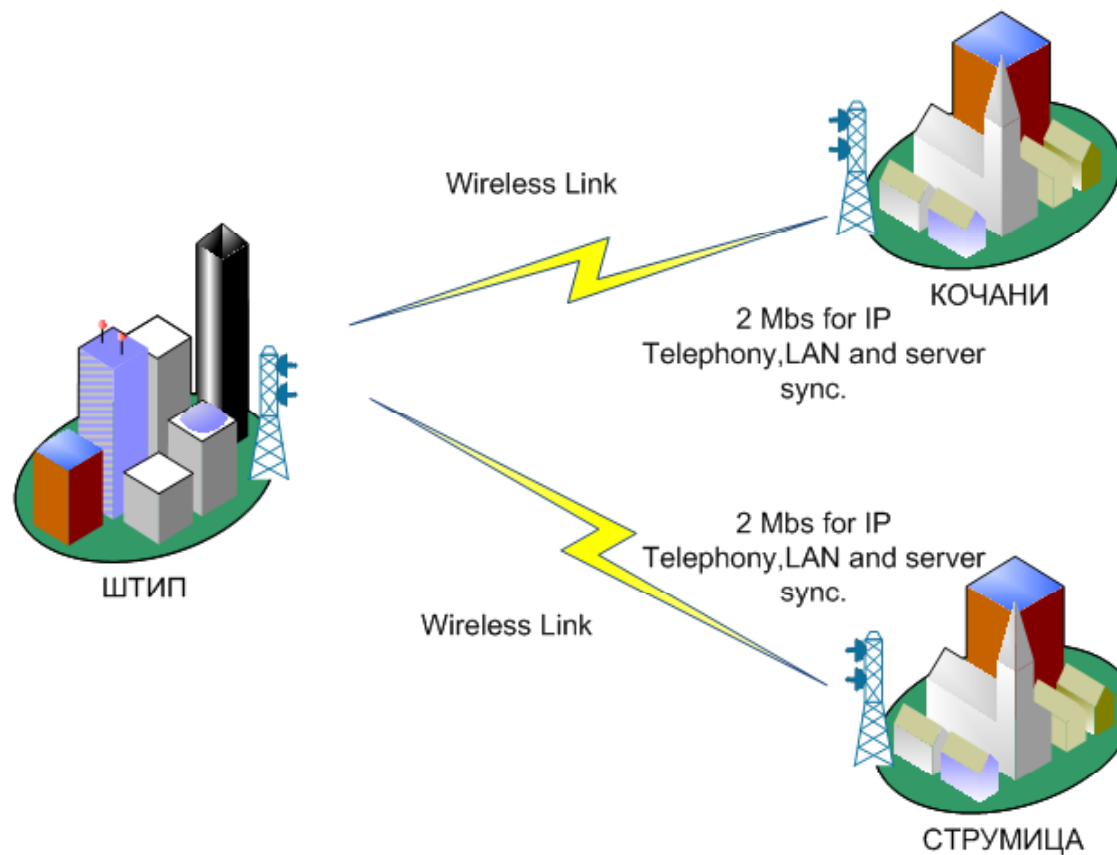
## Штип – Ректорат - Факултети





# УГД WAN

## Штип – Струмица - Кочани

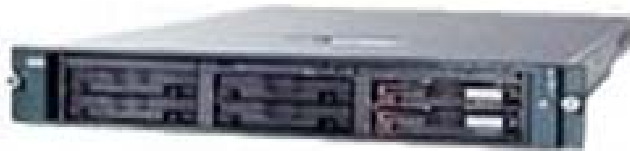


# LAN – пасивна опрема

- Гигабитна мрежа во сите објекти
- Пасивна опрема:
  - кабел Cat7
  - Patch panel / outlet Cat6a
- 65000m инсталиран кабел
- 2500 приклучни места

# LAN – активна опрема, телефонија

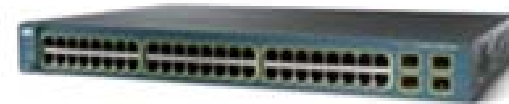
- Активна опрема:
  - Switch Cisco Catalyst 4507R, 3560G
  - Router Cisco 3825
  - Cisco ASA 5520
- IP телефонија (Neotel VoIP + ISP)
  - Cisco Unified Call Manager 6.01
  - IP телефони Cisco



Cisco Unified Call Manager 6.x



Router 3825



Catalyst 3560G 48



Catalyst 4507R



7911G



7940G



7970G



ASA 5520





IBM System x3550



DS4800



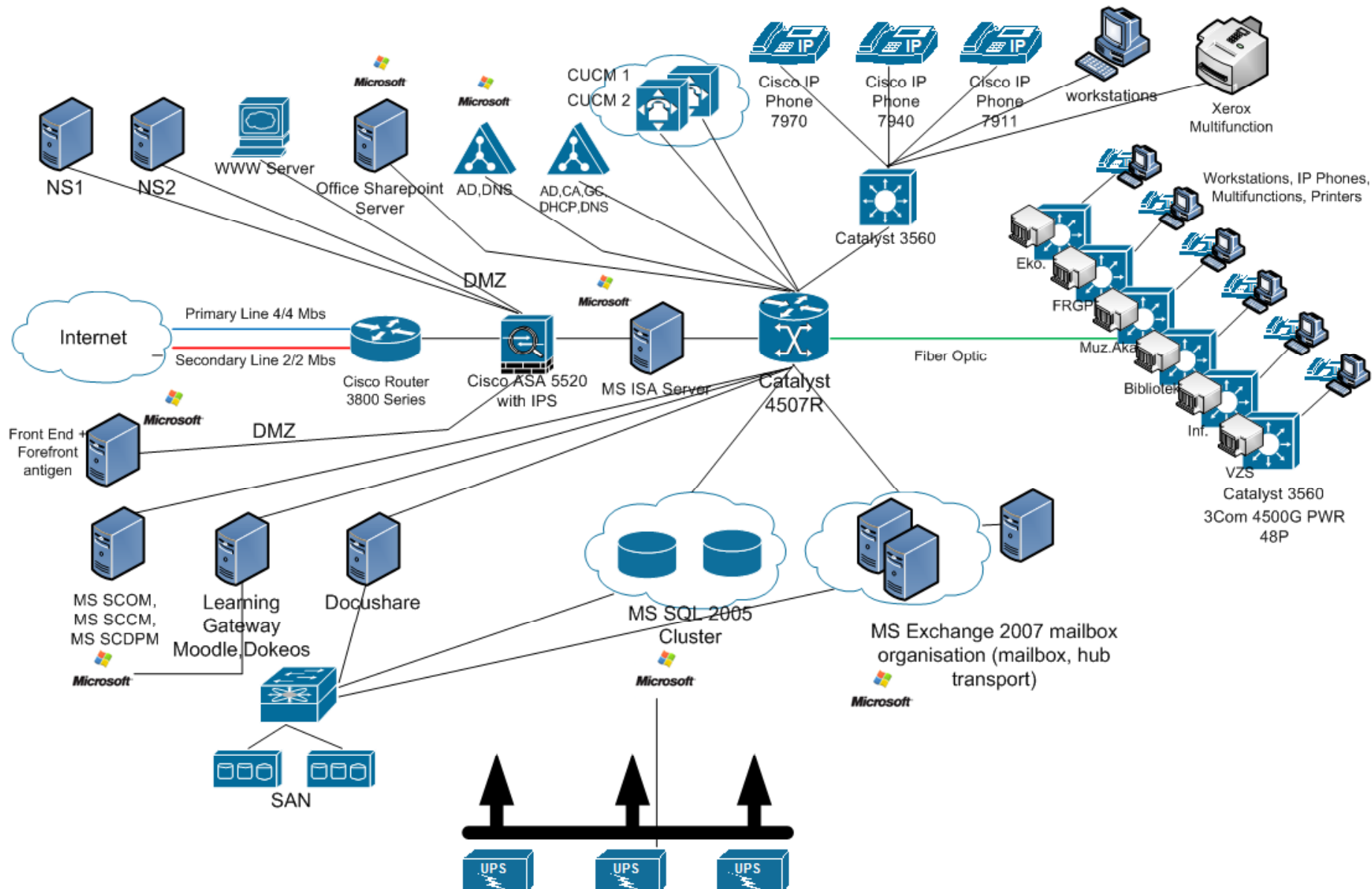
TS3100



# Инсталирани Microsoft серверски технологии

- Windows Server 2008
- SQL 2005
- Exchange 2007
- SharePoint Server 2007
- Certified Authority
- ISA Server
- Front End + Forefront Antigen
- SCOM, SCCM, SCDPM





# Инсталирани Microsoft апликации

- Office 2007 Professional
  - Македонски интерфејс
  - Користење на македонска поддршка
  - Интегриран со сите апликации
- Останати Office апликации по потреба
- Visual Studio 2008 – на Информатика

# Инсталирани наменски апликации

- Е-Индекс - .NET, MS SQL
- DocuShare - Xerox
- E-learning - Learning Gateway + Moodle
- Финансиско работење - Linux
- HR / MS - .NET, MS SQL
- Контрола на пристап и на работно време
- Основни средства, телефонија, возила
- Приемни испити – Real Time информација



**Настава,  
Истраживања,  
Конекција Универзитет-Стопанство**

# Кадри, подготвени веднаш да започнат со работа

- Образование + пракса
- Неформално образование:
  - Microsoft ИТ академија
  - Cisco академија
  - ИБМ академија
- Интегрирање во курикулумот

# Нашата Визија

Универзитет,  
современ, по Европски  
критериуми, организиран и  
базиран на информатичка  
технологија!

# Благодарам!

М-р Зоран Здравев,  
Универзитет „Гоце Делчев“  
[zoran.zdravev@ugd.edu.mk](mailto:zoran.zdravev@ugd.edu.mk)

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Дипл. инж. Гоце Богатинов

Јордан Тиквешански

Борче Јаневски



