



Akademska in raziskovalna mreža Slovenije

Introducing Information and Communication Technologies to Schools in Slovenia

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ICT to schools - Why?

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- New ways of communication and learning
- Kids are growing up into a world of ICT
 - the only ones truly embracing it
- Schools are there to bring “Net literacy”
... having to learn themselves along...
- This situation determines new relations between teachers and students
 - wise can use it to their advantage



Schools on a frontline

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- Interested in using new applications
- Demand for highly interactive communication
 - videoconferencing, distant teaching & learning
- Schools make good test-beds for ICT usage
 - technology in everyday's real life environment
 - maintenance, security risks
 - different levels of experience



Bringing ICT to schools

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- Directions of e-Europe:
Fast internet access for all schools and students
- A long way to go
 - new technology spells costs
 - educating the educators
 - introducing new methods and concepts
 - changing the system
 - changing the mindset



ARNES - NREN of Slovenia

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- Founded in 1992 as a public institution to provide network services to R&E community in Slovenia
- To schools it provides
 - connectivity
 - network services
 - support
- Takes active part introducing ICT to schools in close cooperation with Ministry of Education, Science and Sport



Let them kids play with Internet

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- ⇒ Since 1994 free personal accounts for teachers and students in primary and secondary schools
- ⇒ From “why not...” to a driving force of progress
 - teachers were forced to learn about internet
 - creative teachers saw an opportunity to use new technology and make use of student’s interest
 - accumulating experience in new environment
 - pedagogical possibilities
 - social impact
- ⇒ Need for “Net education”



Active role of teachers-tutors

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- ⇒ Each student user must have a “tutor”
(any teacher who feels that this student needs personal dialup access to ARNES)
- ⇒ Tutor can suspend a student account and negotiate time and disk quotas
- ⇒ In case of network abuse, we contact the tutor
- ⇒ Teachers participate in “net education”
- ⇒ They can guide and motivate students



More than user support

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- Lots of individual work with tutors and online project coordinators
 - user support, counselling
 - support for school projects, additional services
 - many times, we are asked to play the role of (net)educators, psychologists...
- Demand for systematic teacher training
- ARNES helps “training the trainers”



6 years after...

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- 18000 teachers and 18000 students have individual accounts
- Fruitful contact with teachers and students
- A number of excellent online projects
- Knowing user's needs and problems we can help in strategic planning
- Growing demand for better connectivity



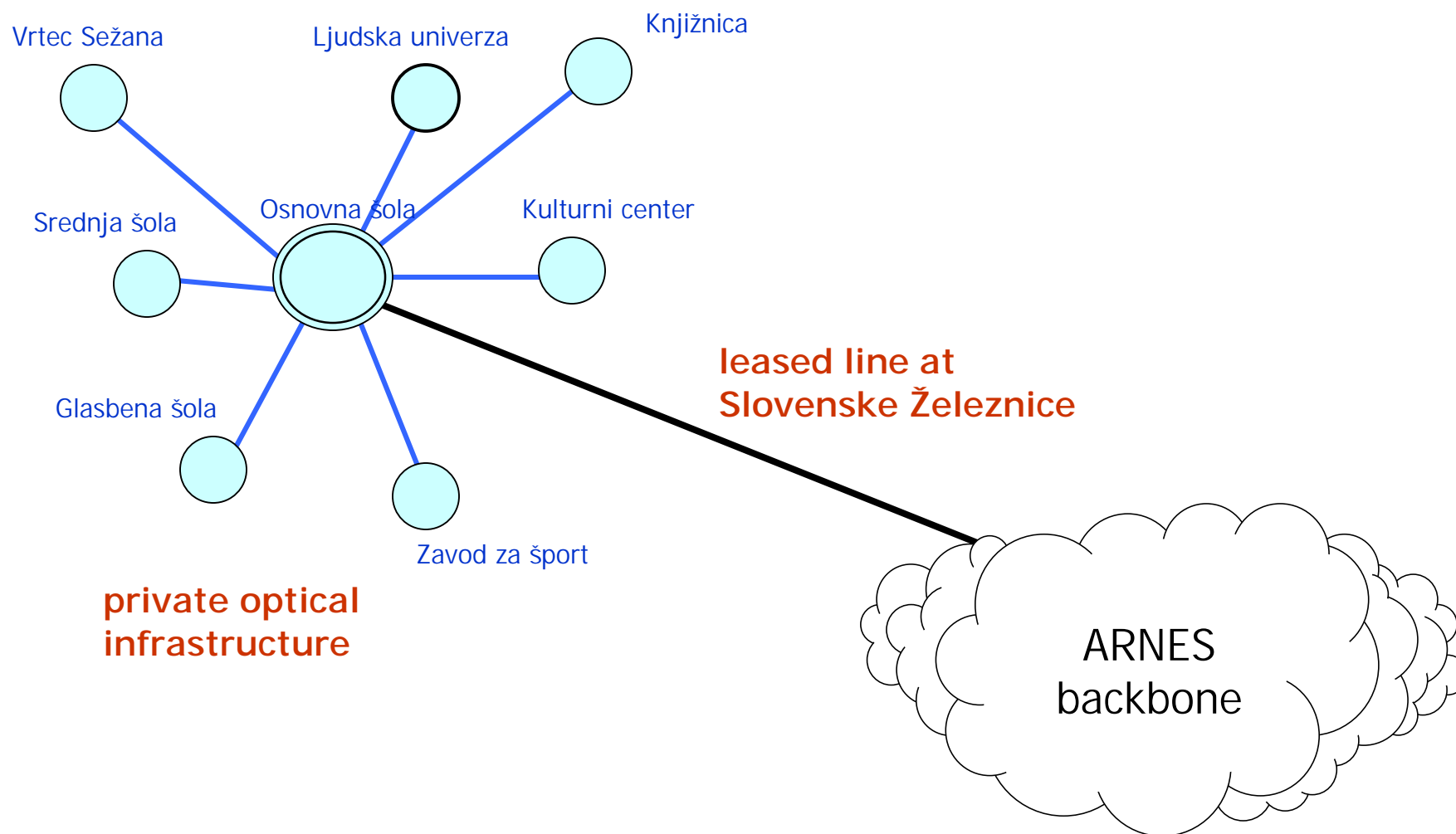
Monopoly stalling the progress

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- Early permanent connections were built on copper wire
- Optimizing modem speed to the needs
- Formal (until 2001) and de-facto monopoly of Telekom Slovenije
 - high prices of leased lines
 - prohibitive price of copper wire
 - no dark fiber
- Few permanent connections, costly ISDN

- New Telecommunications Law
- Competition lowers the prices
- Variety of solutions/performance/quality
 - uneven availability
- New players in the game:
 - ELES, Slovenske Železnice, cable TV operators...
- Private infrastructure
(optical links, wireless connections)

Sežana case: building private MAN





Choosing the best option

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- ARNES offers expert support and advice
- Contracts with carriers
- Coordinated regional support
- Trainers have become counsellors and supervisors
- Co-funding and supervision from the Ministry



Creating a networked school

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- Accepted standards and recommendations for building networks at schools
- Holistic approach – planning for future
 - LAN - administration network segment, labs, classrooms, library...
 - proper wiring
 - servers, computers, applications..
 - security
 - network management and maintenance



ARNES support

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Network Operating Center

- network supervision
- troubleshooting

Additional services specialized for schools

- establishing basic security on school-specific LAN segments through filters
- recommendations for network administrators



We're on - what now?

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- Introducing ICT to educational process
- Running projects
- Maintenance, support, education/training
- Teachers are generally willing to share their knowledge, yet they need further encouragement to start working together
- Despite all ICT, meeting face to face is crucial for “kick-off”
- Meet us at MIRK in Piran