



Connected Schools Disconnected Teaching

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ARNES – National Research & Education Network

CONNECTIVITY & SERVICES FOR SCHOOLS

Connecting schools since 1993

MISSION: GOOD CONNECTIVITY FOR SCHOOLS

Educating digital citizens is vital

2015: 1G FOR 38% SCHOOLS (but 70% pupils)

Project by MoE, ERDF funding

Last mile dark fiber from operators, 25 yr maintenance

Comm. equipment managed by ARNES

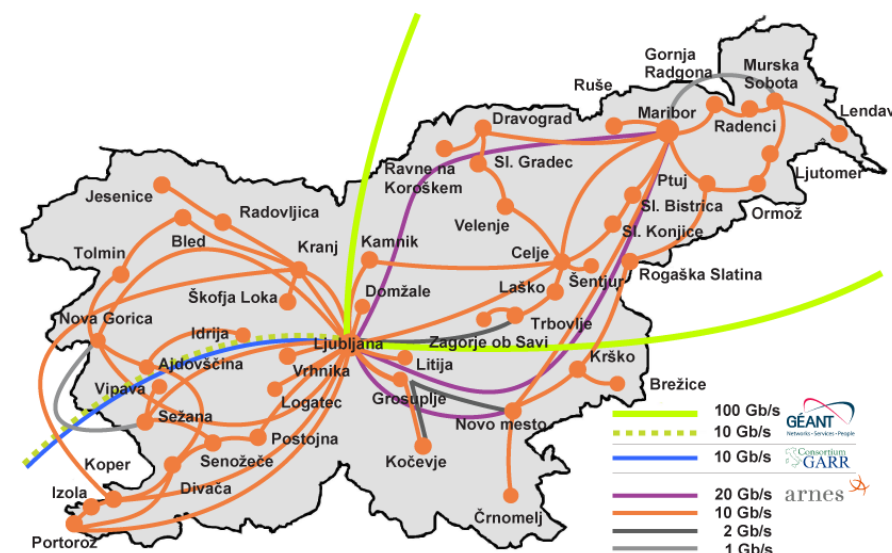
2022: THE REST?

2018-2020: WLAN IN SCHOOLS



Safe & powerful WiFi

Centrally managed by ARNES



2020: schools closed 100x increased service usage - information tsunami

LEARNING MANAGEMENT SYSTEM

54.000 virtual classrooms (13.000 before the pandemic)

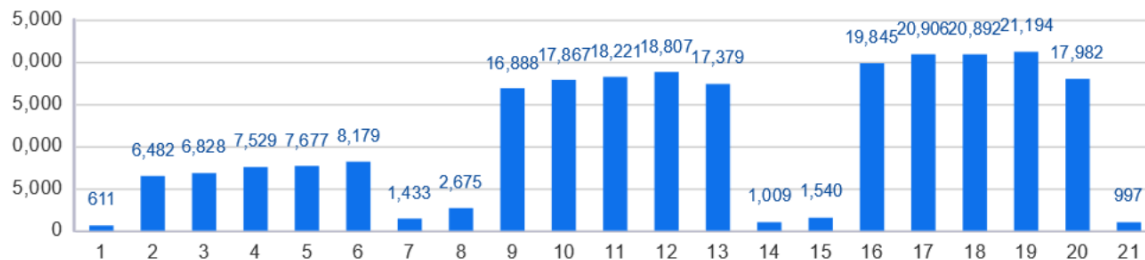
Before: 150 concurrent users After: >20.000

VIDEOCONFERENCING

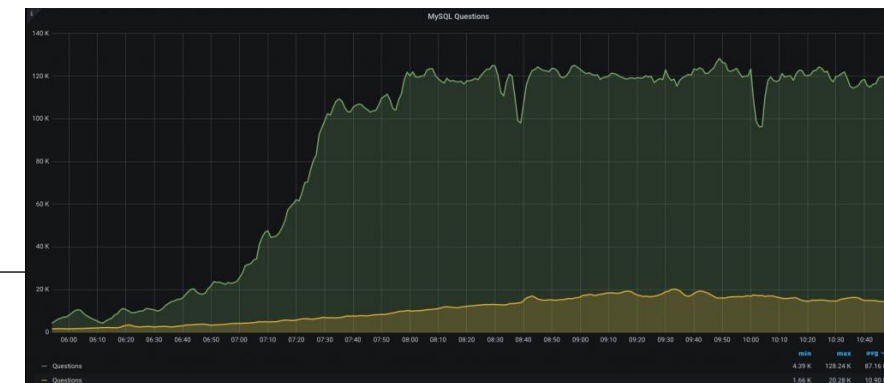
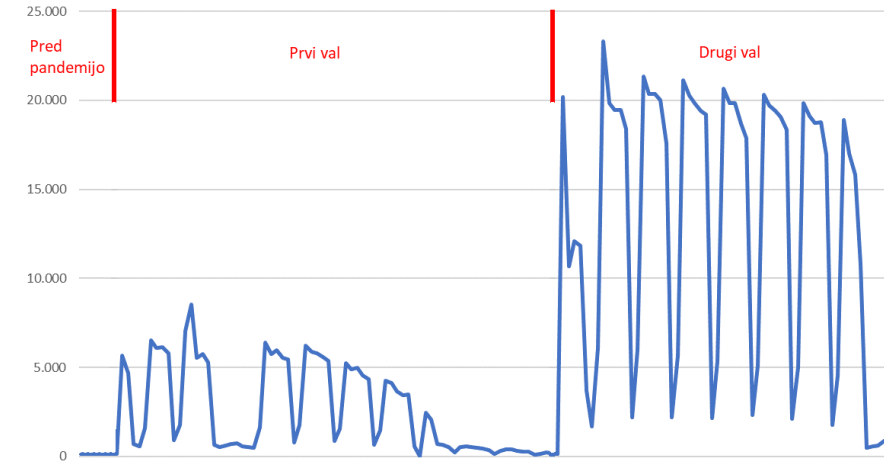
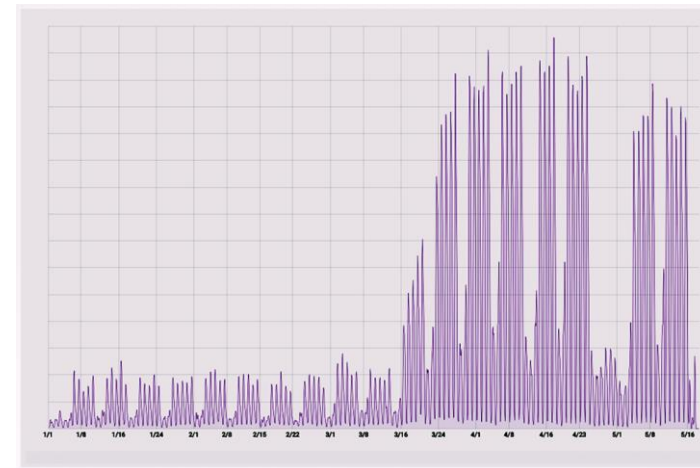
Before: 100 users per day After: 50.000 concurrent

(one service only)

Total Meetings/Webinars



Note: Slovenia has 2 Mio inhabitants and roughly 300.000 K12 students



Challenges of distant learning

CONNECTIVITY @HOME

Working/studying conditions?

DIGITAL DIVIDE AMPLIFIED!

Social aspects

COMPUTERS, MODEMS, CAMERAS...

Arnes helps with additional funding (MoE, EU/REACT)

Operators donated 1yr mobile internet

DIGITAL SKILLS

Long tail of low-skilled users

Surging need for help& training

GOING ONLINE: NEW METHODS OF TEACHING/LEARNING

Gradual process facing sudden urge



Privacy and rules in a „virtual classroom“

INCREASED EXPOSURE

Online fraud, bullying, abuse
Increased „screen time“
Information bubble

School invading privacy of home
Parents invading the classroom!

RULES OF CONDUCT

Analogy to „normal workflow“
... but not quite

LEGAL FRAMEWORK

Legal basis for data processing
Intellectual property rights



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First: access to technology & tools

Then: make (meaningful) use of it

INFRASTRUCTURE AND SERVICE SCALE-UP

... to cope with the demand. New requirements.

SUPPORT, TRAINING, EDUCATION

Workshops, webinars, MOOCs

COMMUNICATON, GUIDELINES, POLICIES

Lots of confusion among the users

HOW MUCH TECH DOES IT TAKE?

Tech is easy

HOW MUCH HUMAN EFFORT DOES IT TAKE?

Critical: support on all levels

Management; Best practice sharing



How much connectivity?

HYBRID EDUCATION, WORKING FROM HOME

To what extent?

DIGITAL DIVIDE vs EQUAL LEARNING OPPORTUNITIES

SETTING THE STANDARDS FOR CONNECTIVITY

In schools? Optical networks.

At home? “How many VC streams? Two, three, five?”

MOBILE (SMARTPHONE) CONNECTIVITY

Ambiguous role of smartphones in schools

Increased complementary use

SUSTAINABILITY?!

What else does it take, apart from connectivity issue?



Digitalization is a complex process

We need all the building blocks to fit

Services

- Identity management
- Support

Education

- Training
- Skills

Methods

- Building Competence
- Curriculum

Connectivity

- E-infrastructure

Client devices

Regulation

- Policies
- Legislation