



**Health Insurance
Institute of Slovenia**
Miklošičeva street 24
1507 Ljubljana, Slovenia



**New smart card &
ON-LINE health insurance**

Slovene HIC system with the introduction of on-line access to health care data

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Content

1. HC system and eHealth in Slovenia
2. Current HIC system
3. Why redesign and its objectives
4. New HIC
5. On-line
6. Piloting and rollout
7. Key challenges



Health Care System in Slovenia

Health care system

- Public and private service provider mix
- Personal physician - “gatekeeper”

Health insurance system

- Tradition - First sick funds 115 years ago, prevalence of social security principles throughout different social system changes
- Compulsory health insurance (CHI) - Bismarckian model, public funds, public service - exclusive provider HHS
- Autonomy of CHI funds and operations
- Supplementary private health insurance (PHI) - private funds, commercial service, different providers
- HC expenditure: around 7% of GDP; coverage ratio: CHI 85%, PHI 15%



eHealth Background and Open Ends

- ICT development cycle
 - Administrative processes, Medical processes
- Insufficient national level strategic coordination of development
- Administrative processes supported, medical processes lack information support
- Relatively poor awareness and knowledge of potentials of ICT with both the doctors and the HC organisation management
- ICT funding dispersed, poor renewal of ICT infrastructure
- Development initiatives originate from IT specialists, not users
- Increasing gap between the needs for information and practices



eHealth 2010 - Vision

Efficient, flexible informatics to support strategic goals of national HC system to serve the needs and best interests of the citizens, HC professionals, HC organisation management, HC service purchasers and HC system administrators.

Interlinking of information system islands to facilitate the access to information and direct communication across the administrative and organisational barriers to both the citizen and to the HC professional.



eHealth 2010 - Strategic Orientations

Citizens:

- Promote information, responsibility and active role of the citizen in the care for own health

HC professionals:

- Information integration of clinical processes, facilitation of access to information sources, expert systems, secure communication between service providers

HC organisation management and HC service purchasers:

- Timely management information

HC system administrators:

- Information integration of the overall HC system (organisations, levels);
- National HC statistics;
- Prompt information to support decision making



eHealth 2010 - Strategic Goals

Electronic Health Record

- Basic information infrastructure
- Standard dataset
- Incremental implementation

National Health Information Portal

- Interlinking of all HC actors
- Security infrastructure
- Tools for communication between the citizen and HC system



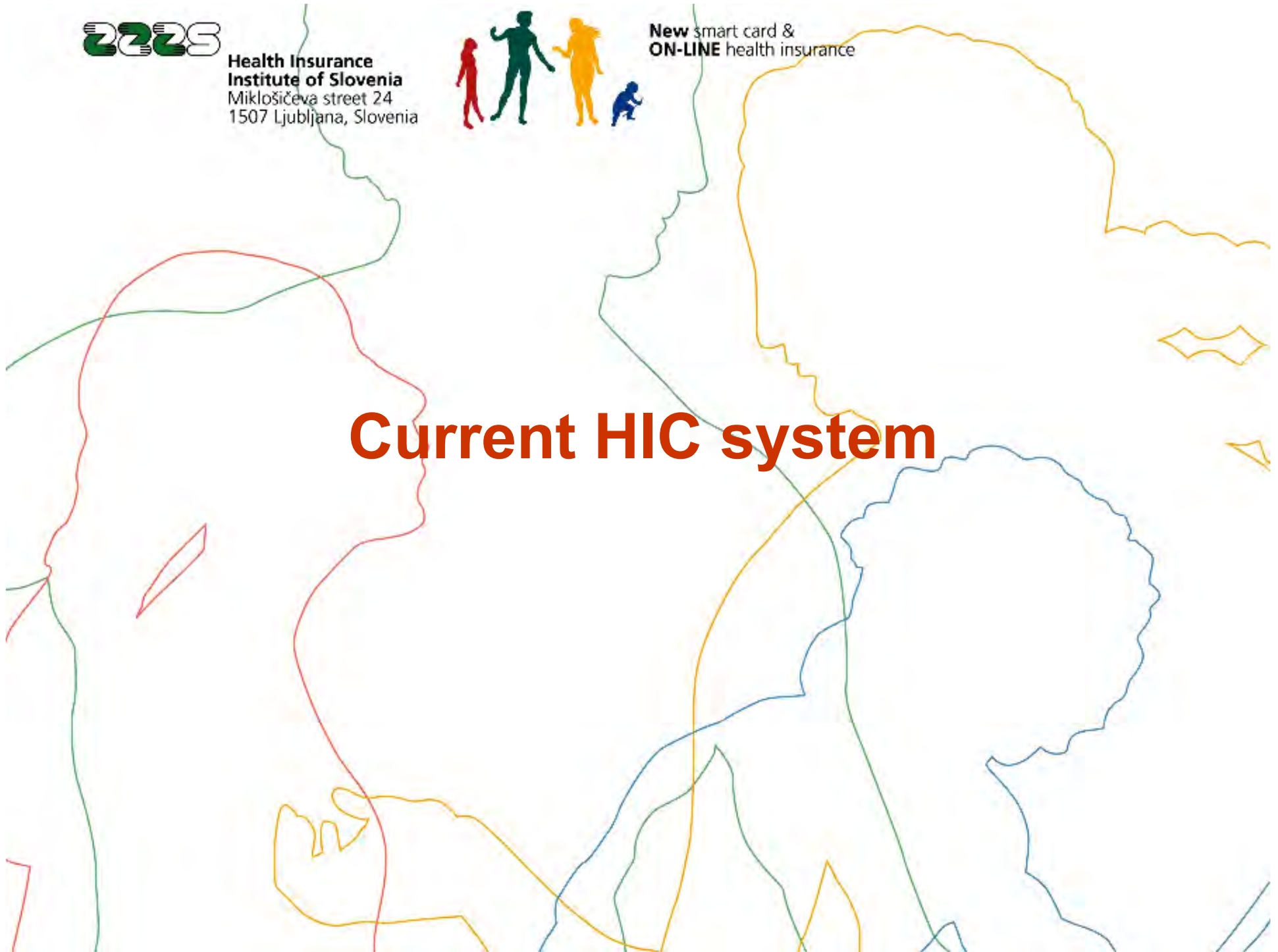


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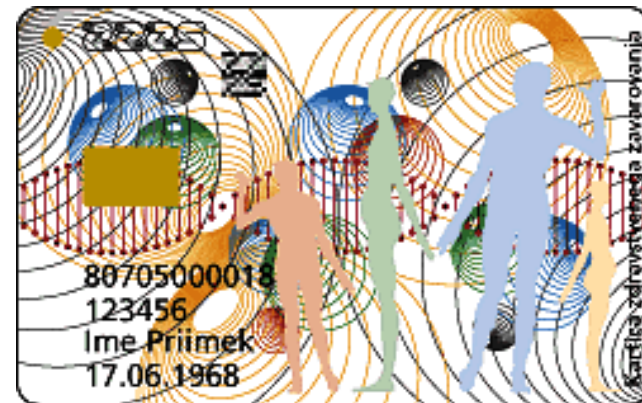
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Current HIC system



HIC System Introduction in 2000

- National project - involvement of competent political and professional bodies, stakeholders, end users
- International partners and suppliers
- HIIS - project sponsor, integrator and manager
- Integration of local IT “islands”
- Uniform solutions at the national level



Components



Functionalities

The card holds electronic records of the following data items:

- card holder;
- health insurance contribution obligor;
- compulsory and private health insurance;
- selected personal physicians;
- issued medical technical aids (13% population);
- voluntary commitment to posthumously donate organs and tissues for transplants
- issued medication (82% population).

Self service terminals enable:

- On-line updating of the HIC data
- Ordering EHIC
- Adding new files and functions on the HIC

Information



Why Redesign ?

Business reasons

- Expectations of insured persons: access to personal data, discontinuation of card data update on self-service terminals.
- Contextual supplementation in the health care sector requires a more contemporary security scheme (electronic signatures, traceability).
- Demands of insurance companies for decreased risk – discontinuation of the three-month insurance data validity period.

Technical reasons

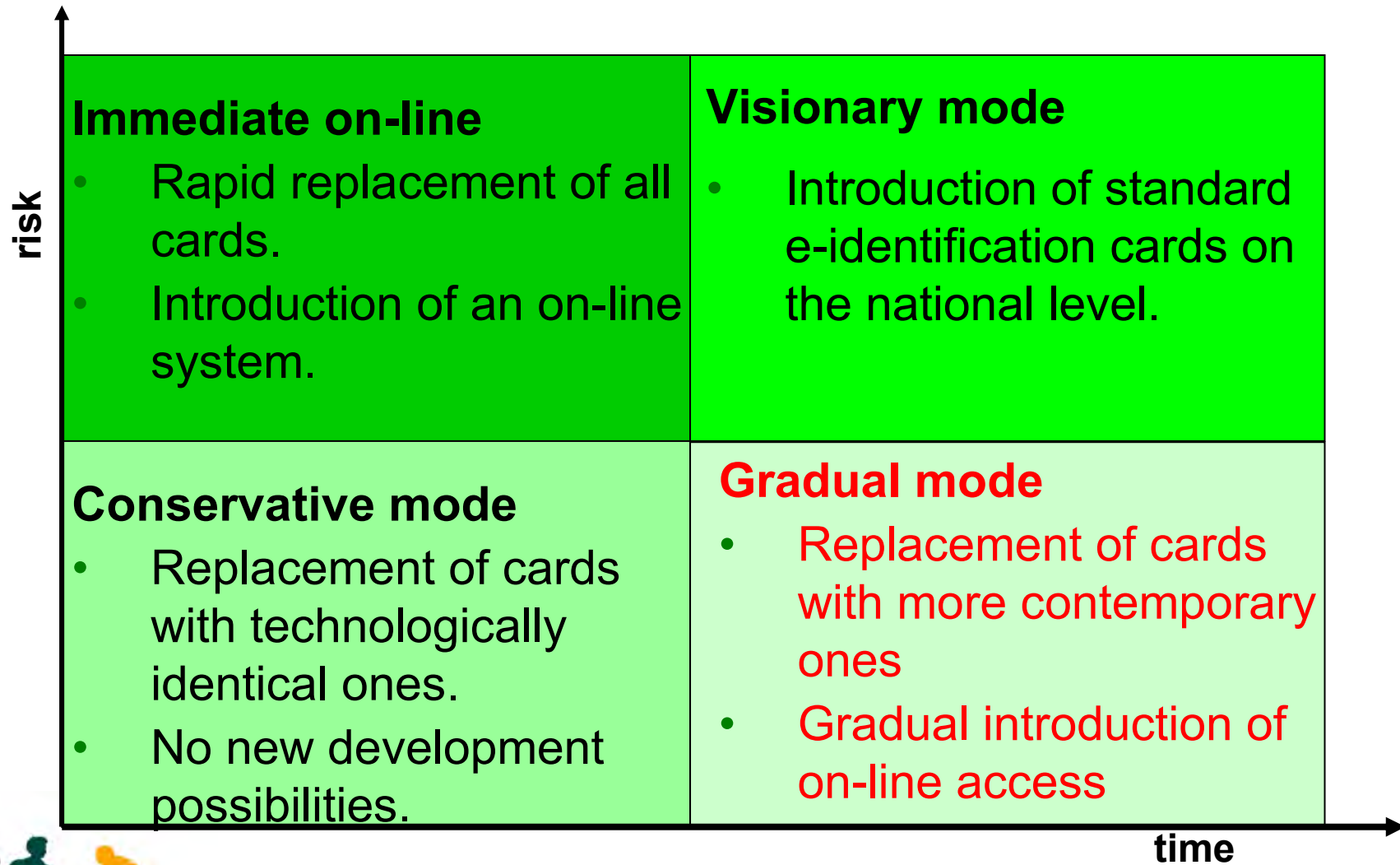
- Gradual discontinuation of the production of current cards (designed in 1999).
- Required upgrade of other components.
- Possibilities for increased inclusion of contemporary networking technologies.

Legal requirements



Requirements regarding the protection of personal data and electronic transactions.

Redesign modes



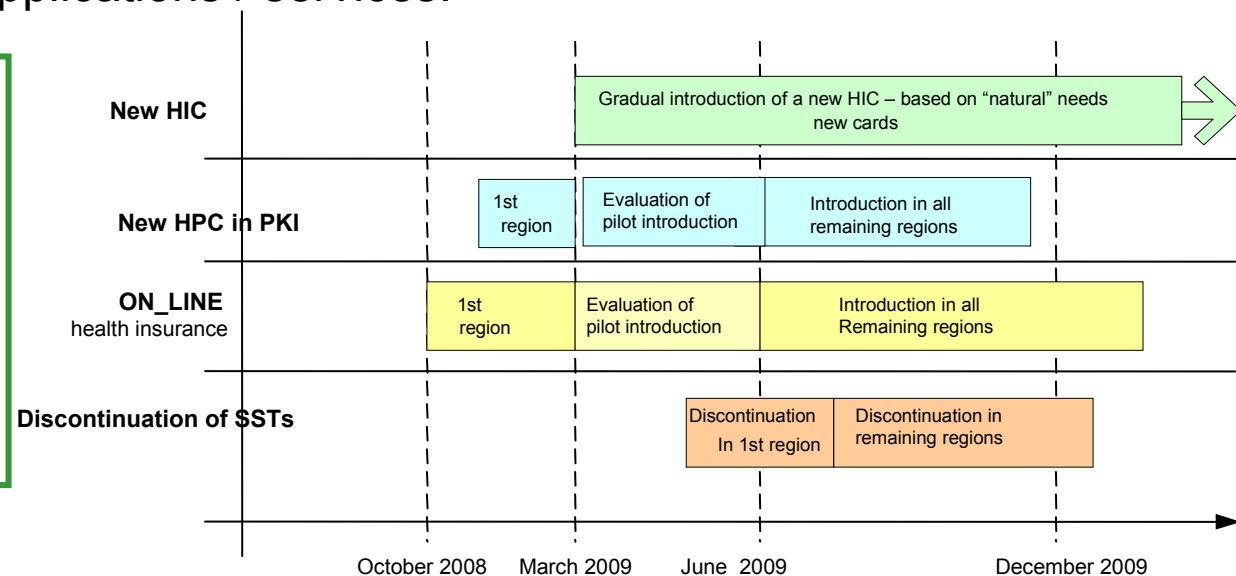
Breakdown of the gradual redesign scenario

Priorities:

- On-line access with the health professional card and digital certificate.
- The HIC will ensure data until a new communications network is set up.
- The current HIC will also be used in the future concept whereby data will be accessible via the network.
- Migration of existing applications for HICs to online → Gradual removal of data from HICs → Discontinuation of self-service terminals.
- Development of new applications / services.

Gradual features:

- Transition procedures will be simplified as much as possible for insured persons and health service providers.
- The functionalities of the current system will not be terminated.
- The infrastructure will be useful for the health sector as a whole



New HIC

- New HIC is functions equal to the current HIC and at the same time allows the storage of digital certificates.
- Card replacement will take place naturally (new insurance, card replacement).
- No changes for insured persons upon introduction, with only minor changes for health care providers.

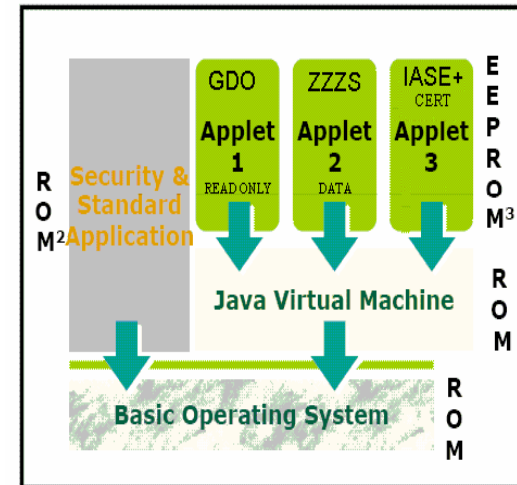


- The new HIC is an access key and no longer a data carrier
- Access to data in the network is only be possible with an HIC → patient consent



New HIC – Technical details

- Java card 2.2.1
- GlobalPlatform 2.1.1
- PP SSCD & EAL 4+ Certification
- Java card:
 - Backward compatibility applet
 - IASE applet



HIC IASE applet

Health Insurance Card

- 2 digital certificate by ZZZS
- Digital Certificat to access entry point with HPC
- Digital Certificat to access personal entry point
- Owner's digital certificates (on citizen request)

- RSA keys, SHA-1 & SHA-256 (API)
- 2048bits for Non-Qualified Digital Certificats
- PP SSCD



Merging HIC and eID ?

- Initiative came from the Ministries of Public Administration, Internal affair, Health and the Health Insurance Institute of Slovenia
- Citizen decides to use a chip on the ID card
- New eID should be used only in online mode, no health data will be stored on the card
- For the eID the new HIC technical solutions is fully adopted /same chip, security scheme,...)
- The initiative temporary frozen (?)



ID card – tomorrow?

Identity Card



1

Health Insurance Card



2

Statutory Dig Cert



3

+

+

NEW e-ID CARD FUNCTIONS





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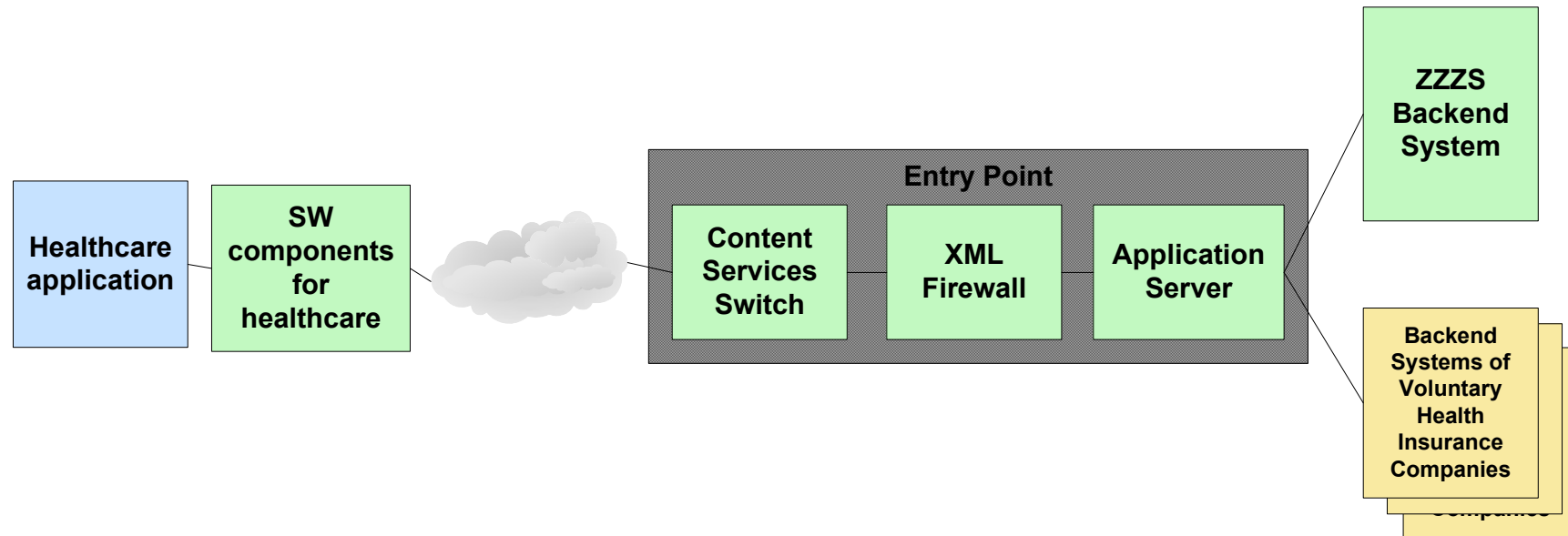
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On line Infrastructure



Technical Details

- Main system components



Technical Details

Dedicated Equipment of Entry Point

Cisco Content services Switches:

- Authentication of users (checking user certificates).
- Ending TLS secure channels.
- Dispatching traffic to parallel routes into Entry point.

IBM DataPower XS40:

- XML firewall.
- XML transformation.



Technical Details

XML Shema

Unified XML
Shema
throughout the
system.

ONLINE Shema – as validated at the Entry Point

HEALTHCARE PROVIDER Schema – Interface between healthcare application and software components

ZZZS Schema – Interface to ZZZS Backend System

VHI Schema – Interface to Backend Systems of Voluntary Health Insurance Companies



Organisational Security Measures

- Data security policy, comprehensive set of internal written rules and instructions.
- Processes, responsibilities.
- No direct access of IT personell to production data.
- Future tasks:
 - Penetration test
 - Systematic analyses of accesses on the Entry Point.



System security and reliability

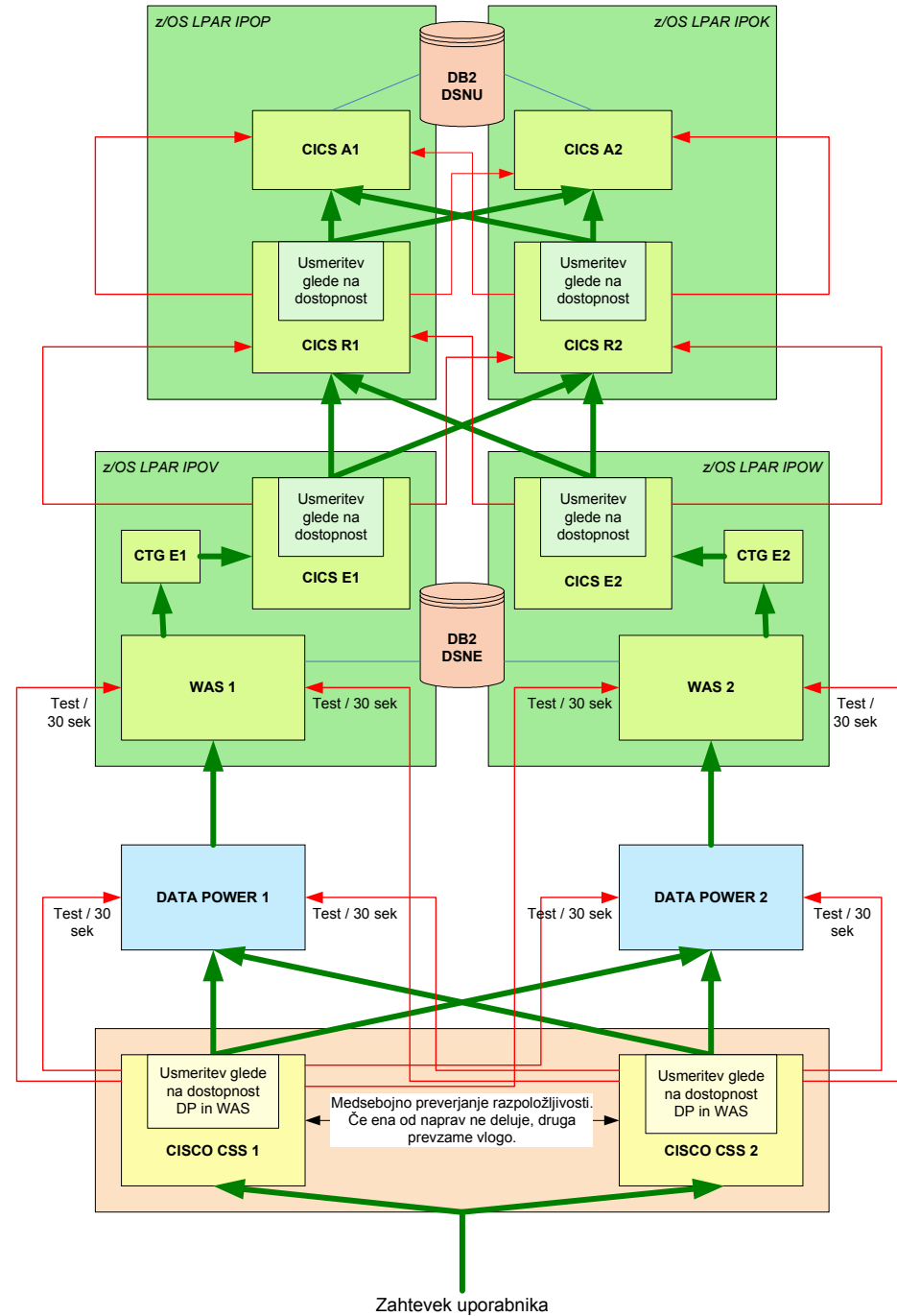
- Several mechanisms for safeguarding central components.
- Redundant equipment and system architecture for high availability.
- Complete supervision of system components.
- Special attention for security and reliability of IT systems at healthcare providers.



High Availability

Technical measures:

- System architecture with redundancy.



- ON-LINE ZZ**
- :: Vsebina navodila za on-line
- ^ Domov

- Naslovi in kontakti**
- ☎ :: Avtomatski telefonski odzivnik (01) 30-77-440

Domov :: Informacije o delovanju ON-LINE ZZ

Informacije o delovanju informacijskega sistema neposrednega on line dostopa do podatkov zdravstvenega zavarovanja

Informacije se samodejno osvežujejo vsako minuto. Čas objave: 13.11.2008 16:10:38



Informacijski sistem DELUJE.

:: Domov	:: Prijava v obvezno zdravstveno zavarovanje	:: Zdravila	:: Medicinsko-tehnični pripomočki	:: Čakalne dobe in ordinacijski časi	:: Izbira in zamenjava osebnega zdravnika	::
:: Mednarodno zdravstveno zavarovanje in naročanje listin za tujino	:: Elektronska gradiva ZZZS	:: Javna naročila ZZZS	:: Povezave na sorodne strani	:: Najpogostejša vprašanja in odgovori	:: Vprašajte nas	::

Initial Functionality (1)

Functions for reading data:

- Basic personal data.
- Compulsory health insurance.
- Private health insurance.
- Selected general physicians.
- Prescribed medical technical aids.
- Issued medical technical aids.
- Issued medications.
- Data on pregnancies.
- Vitro fertilisation procedures performed.
- Designated organ donation.



Initial Functionality (2)

Functions for concurrent dispatch of data:

- Prescribed orders for medical technical aids.
- Issued medical technical aids.
- Issued medication.
- New pregnancies.
- New vitro fertilisation using biomedicine.
- New choice of general physician.



Pilot Implementation

Pilot site:

- General hospital Nova Gorica, GP, Pharmacy.


Implementation date:

- Oct 2008 – Feb 2009.

Preparations:

- Upgrades of IT infrastructure.
- Education for healthcare workers.
- Modification of application (in cooperation with the provider of hospital application).
- Extensive testing before roll-out.

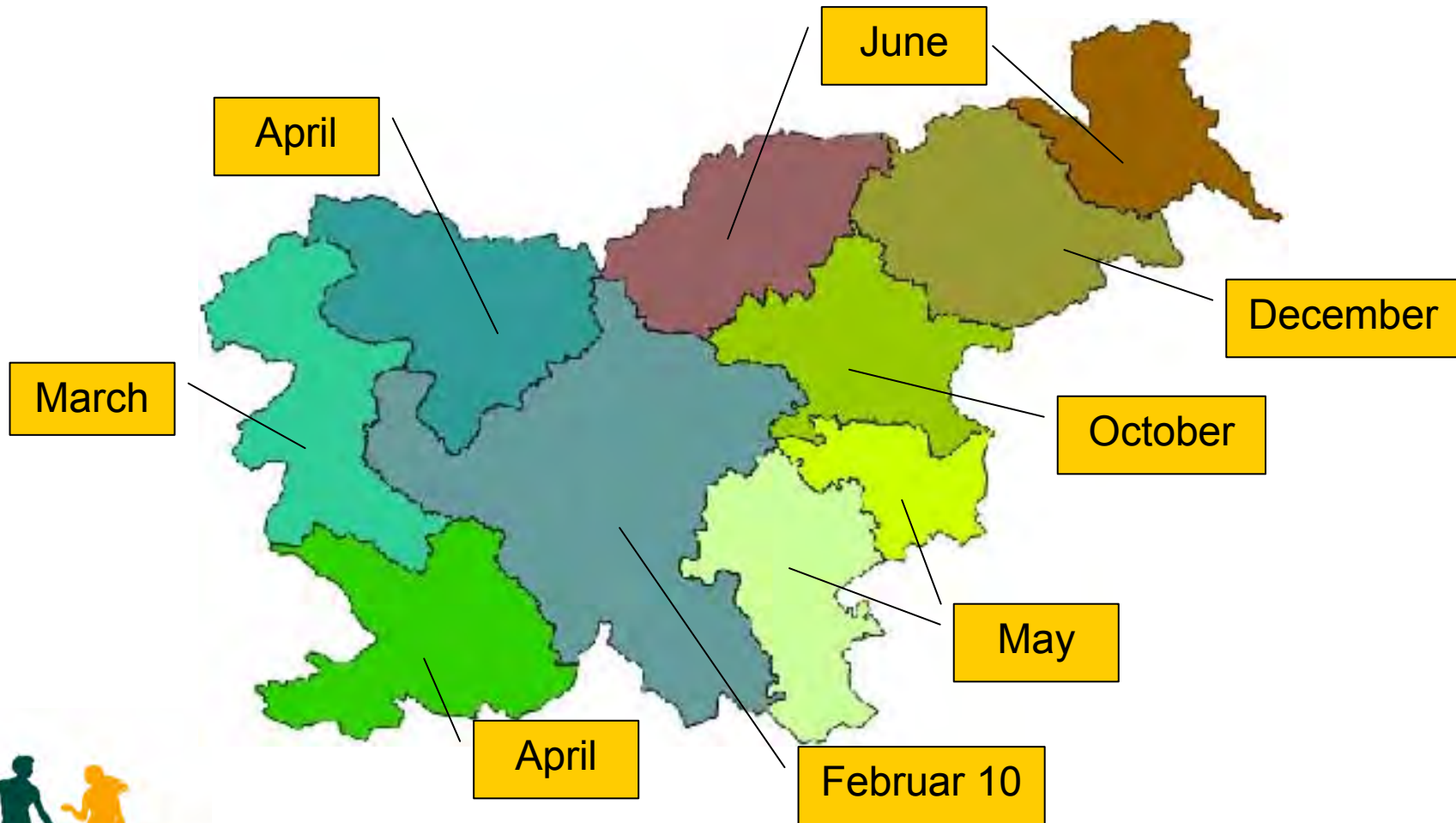


 **Pronova sistema kartice zdravstvenega zavarovanja z uvajanjem neposrednega (on-line) dostopa do podalkoy zdravstvenega zavarovanja**
proti uvredoi v Splošny bolnišnišniški sistem
dr. Franška Demjarcia od 15.10.2008 dalje



Preparations for National Roll-out

Master plan March – Februar 2010



Enhancements

- Exchange of other data sets, required for supervising health insurance rights and electronic confirmation of more expensive healthcare services.
- Physicians' access to analytical data (data of quantity and cost of prescribed medications, ...).
- Electronic health insurance documents: e-prescriptions, orders for medical technical aids, medical referrals, etc.
- Centrally managed secure electronic archive.
- Secure and reliable infrastructure for exchange of data within healthcare. Envisaged applications:
 - National waiting lists and e-ordering
 - Access to personal record
 - Exchange of lab results between hospital and laboratories
 - eDischarge letters
 - EHR patient summary, ...



Benefits for all

For citizens

- Increased confidence and independence through comprehensive security measures and access to their own data
- Simplified procedures (no card updates, ...)

For healthcare workers

- Less time for administrative processes
- Additional administrative data for communication between healthcare workers
- Additional medical data for increased quality of treatment

For health insurance providers

- Better control of health insurance status and rights of insured persons

For all

Reliable, secure and open infrastructure for eHealth



Key challenges

- Promptly executed approvals of individual components and control points of the projects on the level of the supervisory bodies.
- Prompt acquisition of all required consents of partners, especially in the health care environment.
- Obligation of health service providers for the intended use and introduction of e-operations in accordance with the re-design time dynamics.
- Prompt implementation of procedures for supplementing legislation.
- Harmonisation and synergies with other eHealth initiatives .



Thank you

Questions welcomed

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