„eHealth-Card – the German approach"

ASIA PACIFIC DISCUSSION FORUM ON
SMART HEALTH CARD SCHEMES
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Dr.Harald Ahrens

SignCard GmbH & Co KG

What is still actual?

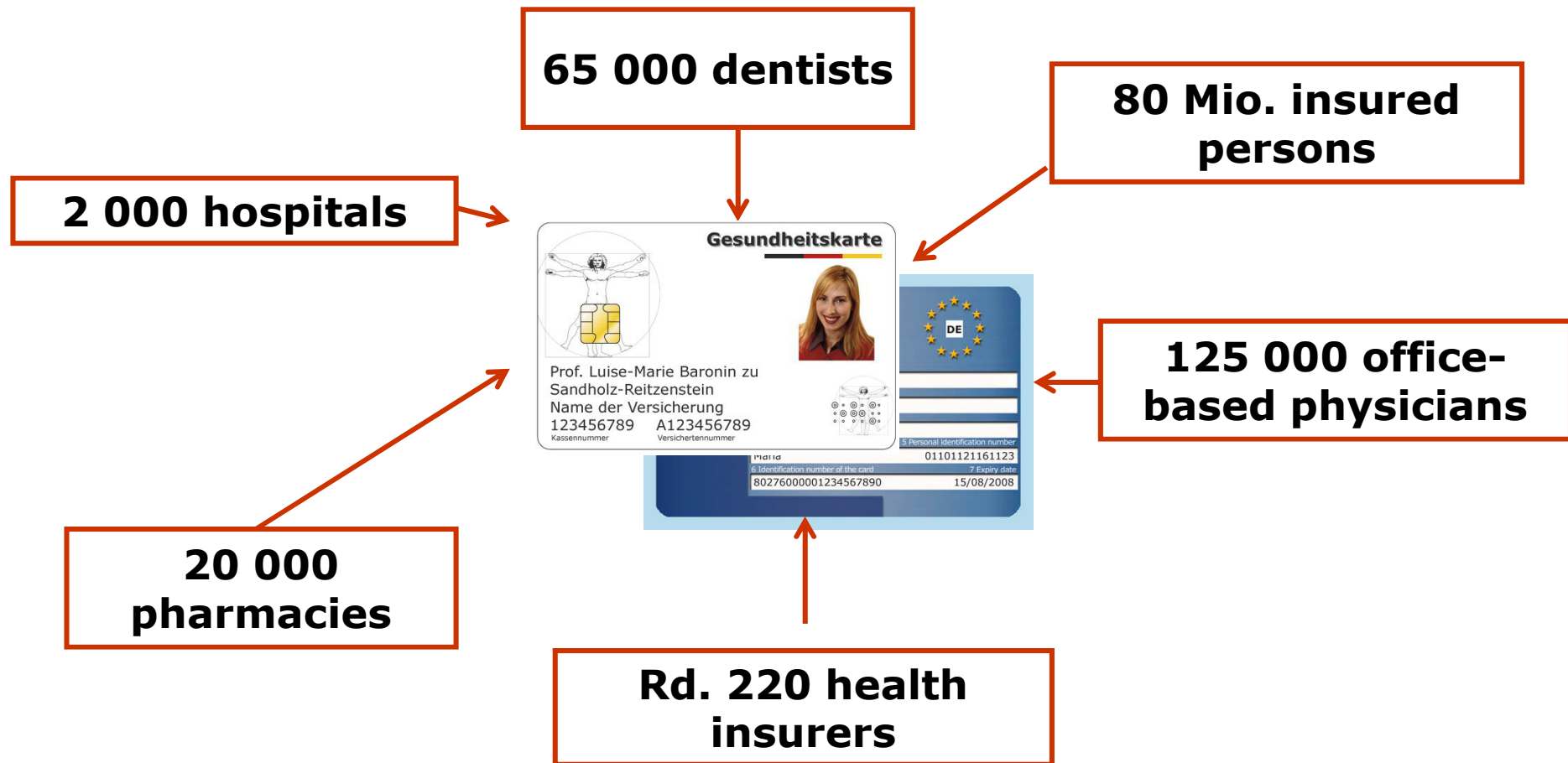# The legal foundation

Legal Foundation

**Health Care System Modernisation Act
(GKV-Modernisierungsgesetz – GMG) from 2003-11-14**

In § 291a an electronic Health Card is defined, containing

- **a photo of the insured person printed on the front side**

- **administrative data of the insured person (printed and more detailed stored on the chip)**

- **mandatory applications**

- **voluntary applications**
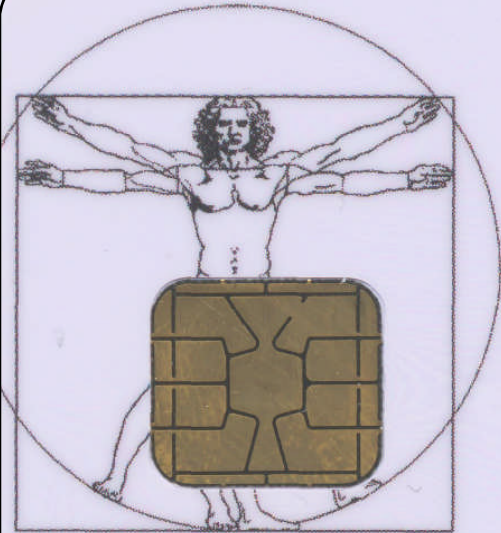
Participants in the health care system

65 000 dentists

80 Mio. insured persons

2 000 hospitals

125 000 office-based physicians

20 000 pharmacies

Rd. 220 health insurers

Source: Federal Ministry of Health

The Smartcards:

Specifications and Functions

The Smartcards

Data of Smartcards

Technical Data of the Smartcards

1. **Smartcard with Microprocessor**

2. **Cryptocontroller**

3. **> 65.000 Byte Memory for the eHC**

4. **Command Set and Structure according to ISO 7816**

Types of Smartcards

Which types of Smartcards are involved in the project?

1. eHC – electronic Health Card

2. HPC - Health Professional Card

3. SMC – Security Module Card (A, B, RFID)

4. SM – Security Module for Connector (SM-K) and Card Terminal (SM-KT)

Content of Smartcards

The smartcards contain cryptographic keys and certificates

- for an electronic signature
  (qualified: mandatory for HPC, optional for eHC)

- for authentication (C2C and/or C2S)

- for encryption

- for key negociation

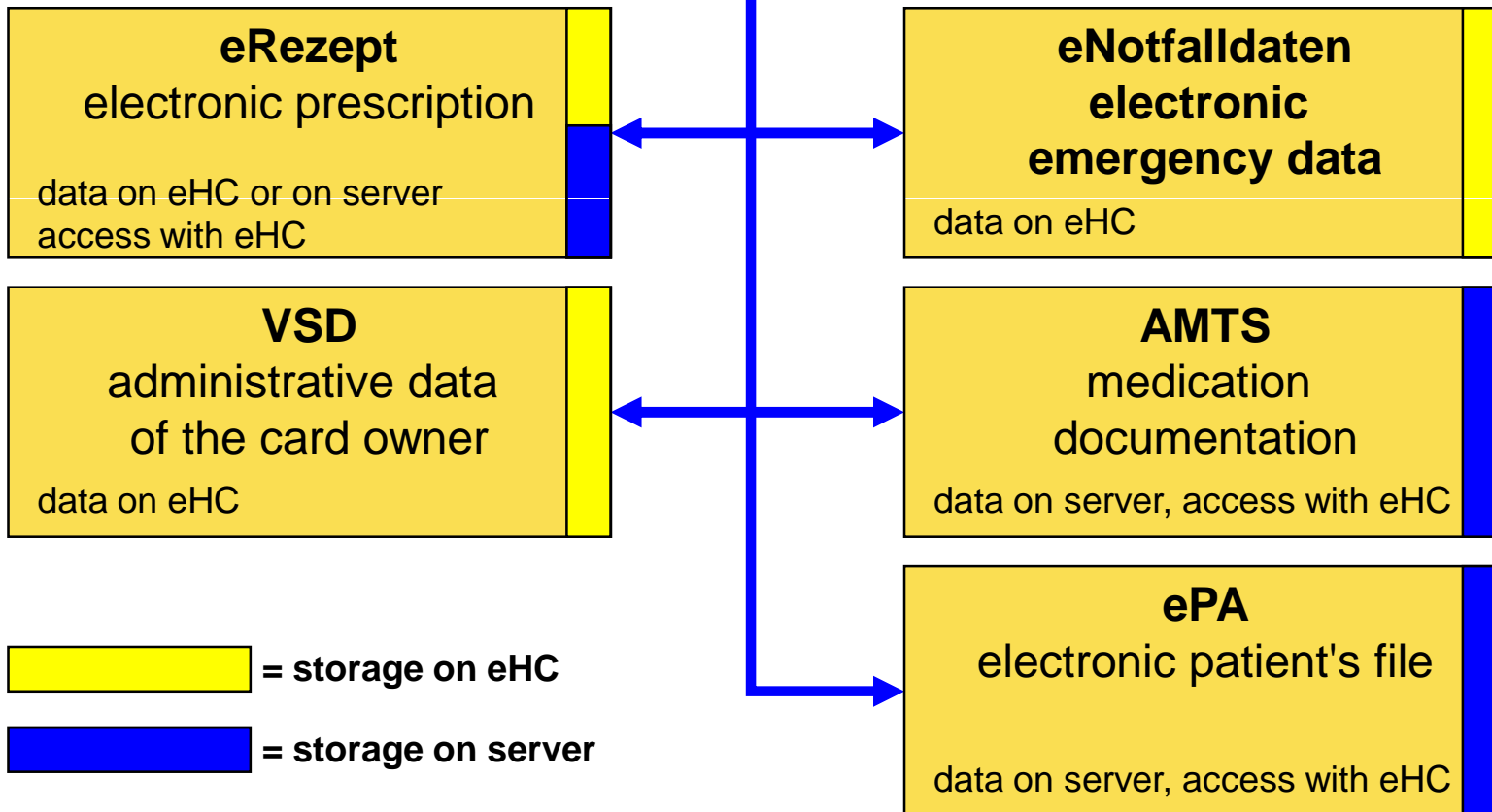for a person (eHC, HPC), for an institution (SMC-B)
or for a component (SM-KT, SMC-K)

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Applications of the eHC

Mandatory applications

Voluntary applications

eRezept
electronic prescription

data on eHC or on server
access with eHC

eNotfalldaten
electronic emergency data

data on eHC

VSD
administrative data of the card owner

data on eHC

AMTS
medication documentation

data on server, access with eHC

ePA
electronic patient's file

data on server, access with eHC

= storage on eHC

= storage on server

The Infrastructure

eHC project – more than smartcards

- **installation of a telematic infrastructure**

- **eHC, HPC and SMC are the keys to participate**

- **The network acts as an „Intranet for Health Care"
  with high security measures**

- **Many different participants have to be connected (assured persons, assurance companies, health service provider, internet provider, etc.)**

- **Many interfaces have to be specified (for practices, services, vpn, broker, connector, card terminal, smartcard, ocsp-responder, update-services, etc.)**

What has happened

Results of the tests in 2008

Test Regions

Test regions for the introduction of the eHC

- **Heilbronn – Baden-Württemberg**

- **Ingolstadt – Bavaria**

- **Bochum/Essen – North Rhine-Westfalia**

- **Trier – Rhineland-Palatinate**

- **Flensburg – Schleswig-Holstein**

- **Wolfsburg – Lower Saxony**

- **Lobau-Zittau – Saxony**

# eHCs and participating Institutions in the Test Regions in 2008

Region	eHCs	Physicians	Pharmacies	Hospitals
Heilbronn	8.277	15	10	1
Ingolstadt	9.497	30	16	2
Bochum /Essen	7.820	24	14	1
Trier	7.734	25	15	2
Flensburg	7.443	27	16	2
Wolfsburg	8.718	25	29	2
Löbau-Zittau	10.792	26	15	2
Total	60.281	172	115	12

Source: gematik mbH

Readings from eHCs in the Test Regions

Number of Readings of Patient Data from the eHC

Month 2008

Source: gematik mbH
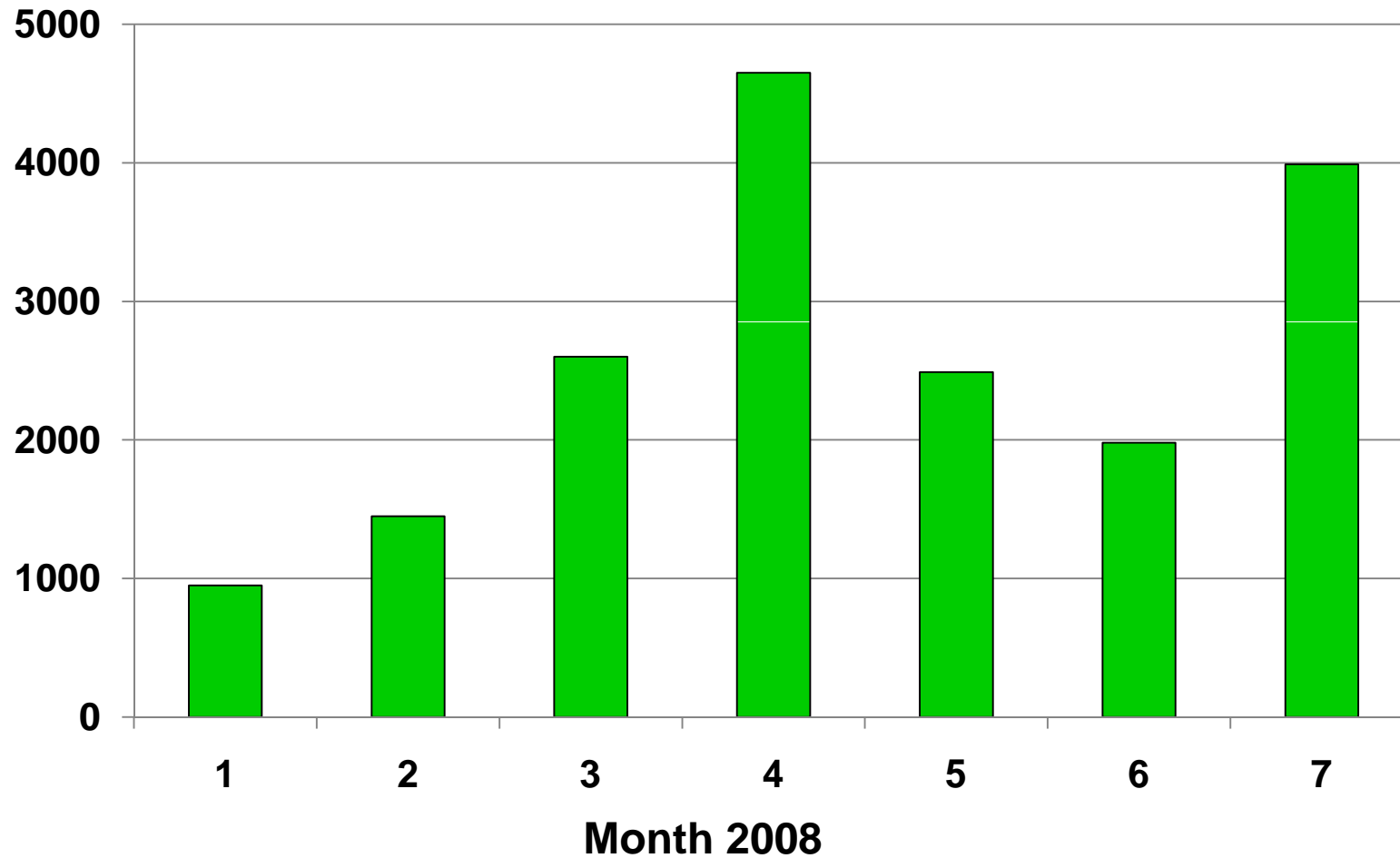
ePrescriptions in the Test Regions

Number of ePrescriptions

Month 2008

= issued

= filled
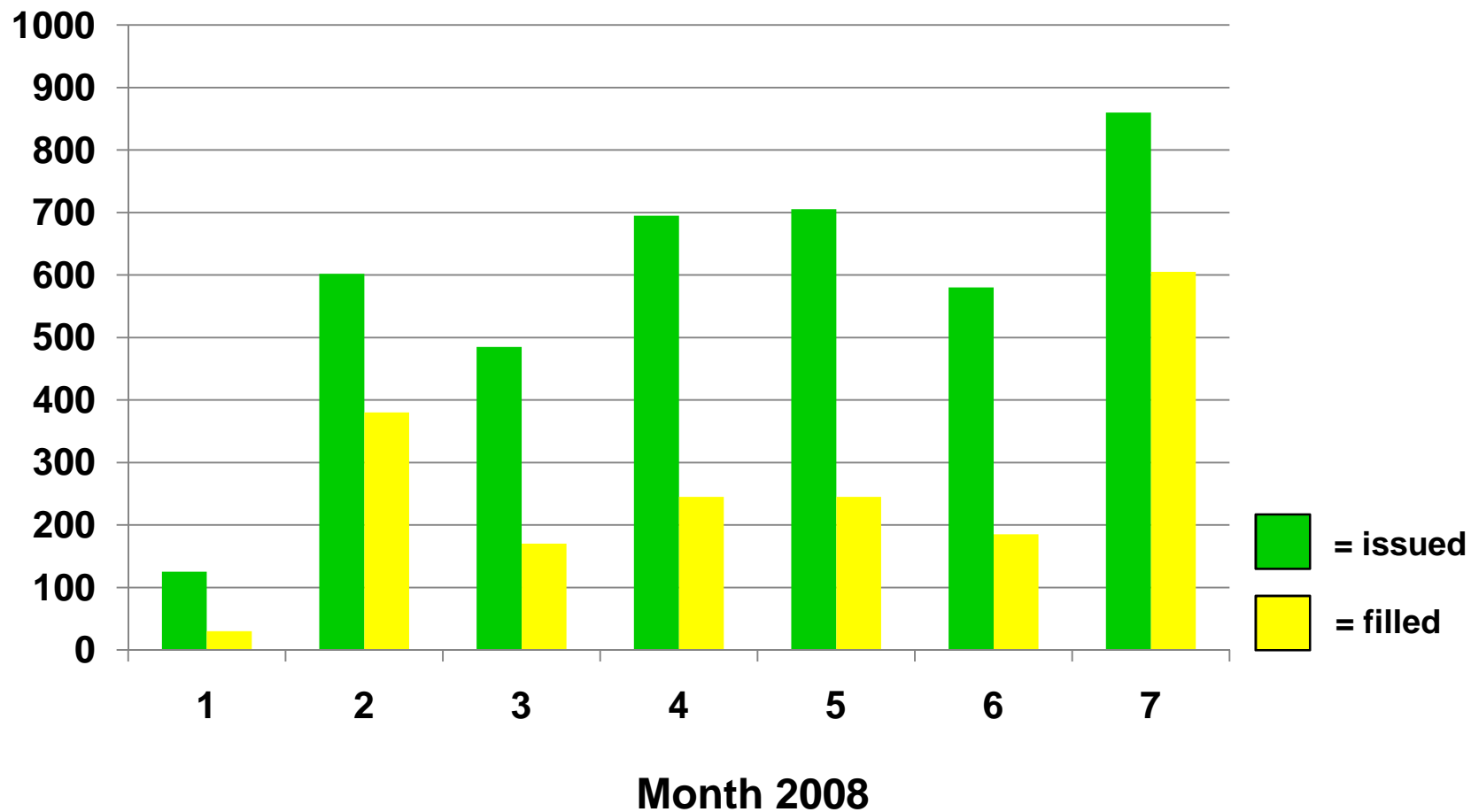
Emergency Data Sets in the Test Regions

Number of Sets of Emergency Data written onto the eHC

Month 2008

Source: gematik mbH
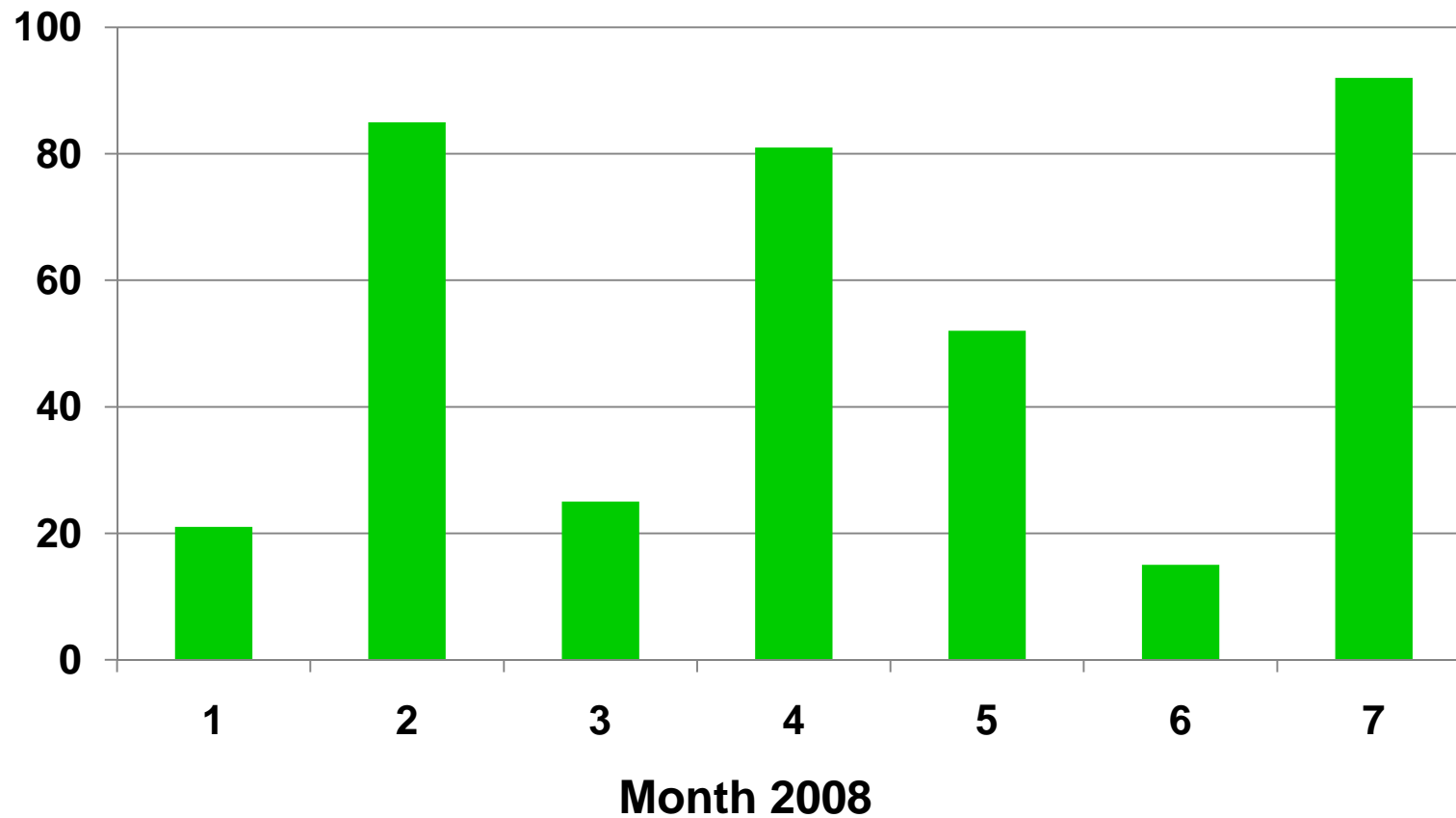
Error Report for the Test Regions

Number of Errors

Legend:
- = eHC (green)
- = System (blue)
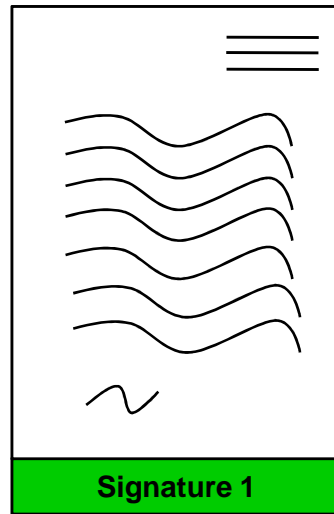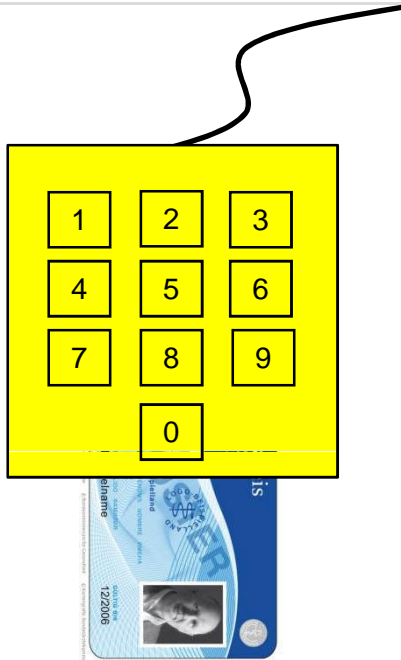- = Connector (yellow)
- = Terminal (red)

X-axis: Month 2008 (1–7)
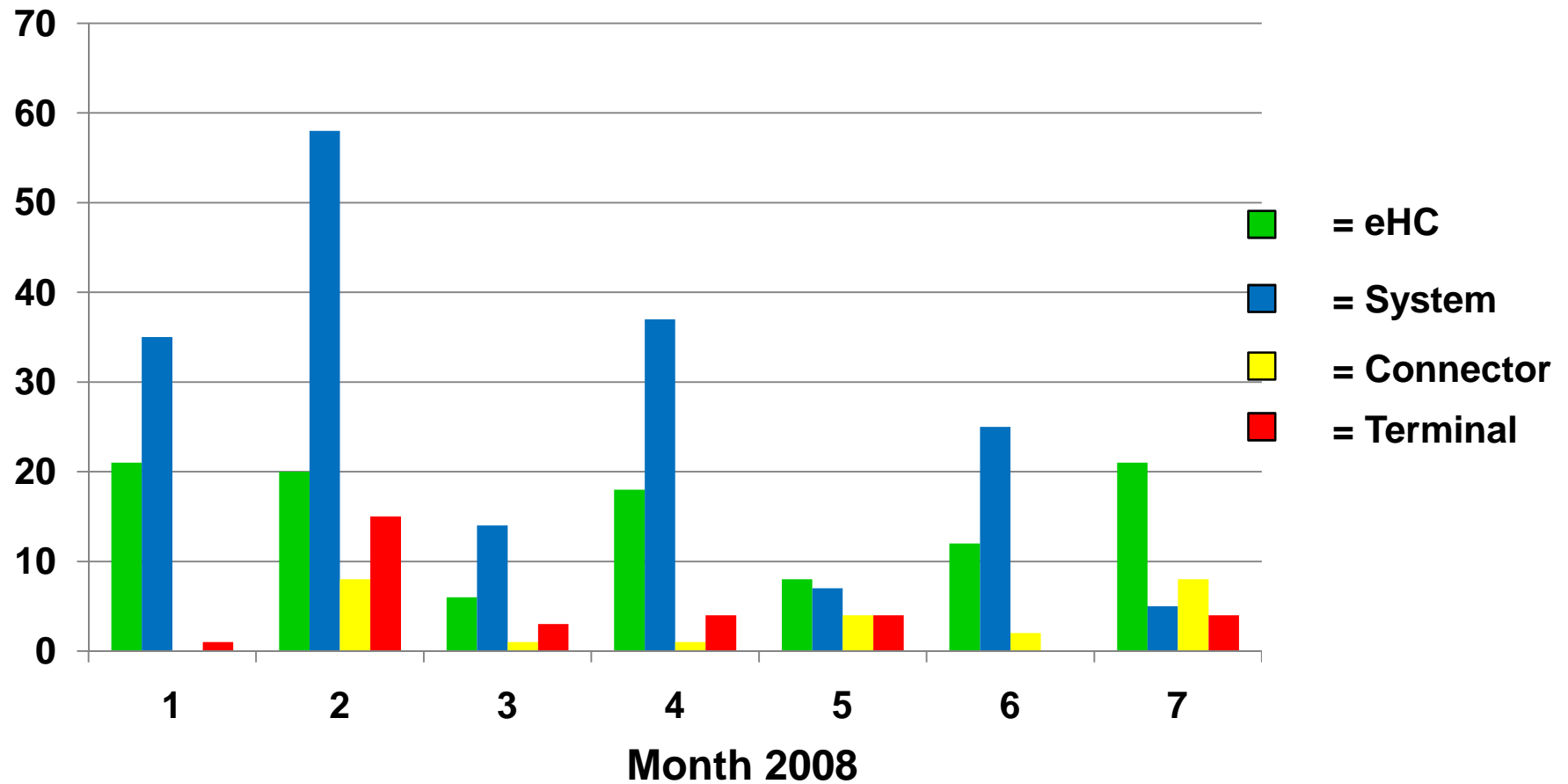
Types of Signatures for Health Professionals

Standard Signature
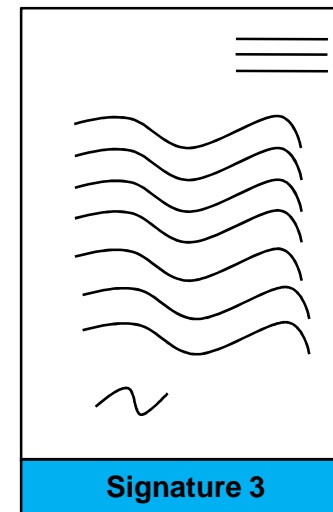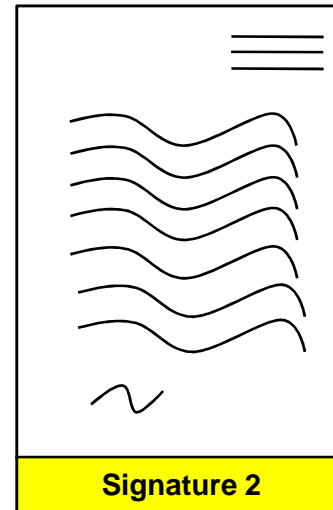
PIN-entry 1

PIN-entry 2

PIN-entry 3

Signature 1

Signature 2

Signature 3

Standard Signature Procedure

Staple Signature

Signature 1

Signature 2
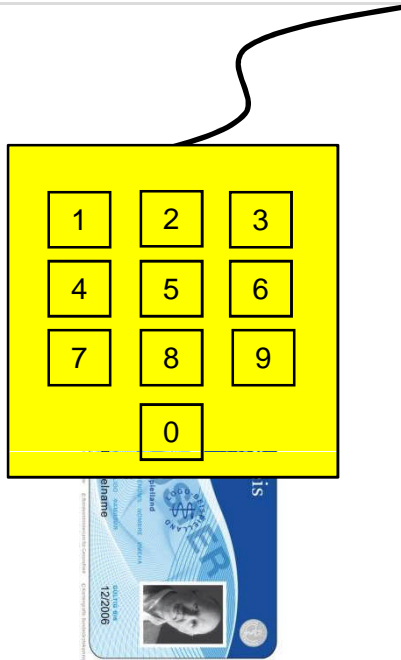
Signature 3

PIN-entry 1
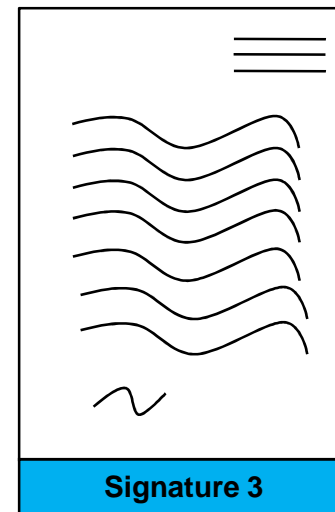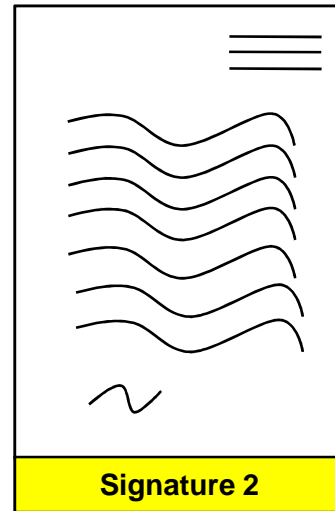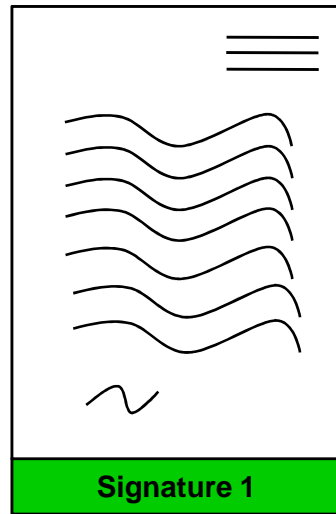
Staple Signature Procedure

Comfort Signature

Card Reader

1	2	3
4	5	6
7	8	9
	0	

Room 1

PIN-entry 1

Signa...

Sig...

Signature 3

RFID Reader

Token

Room 2
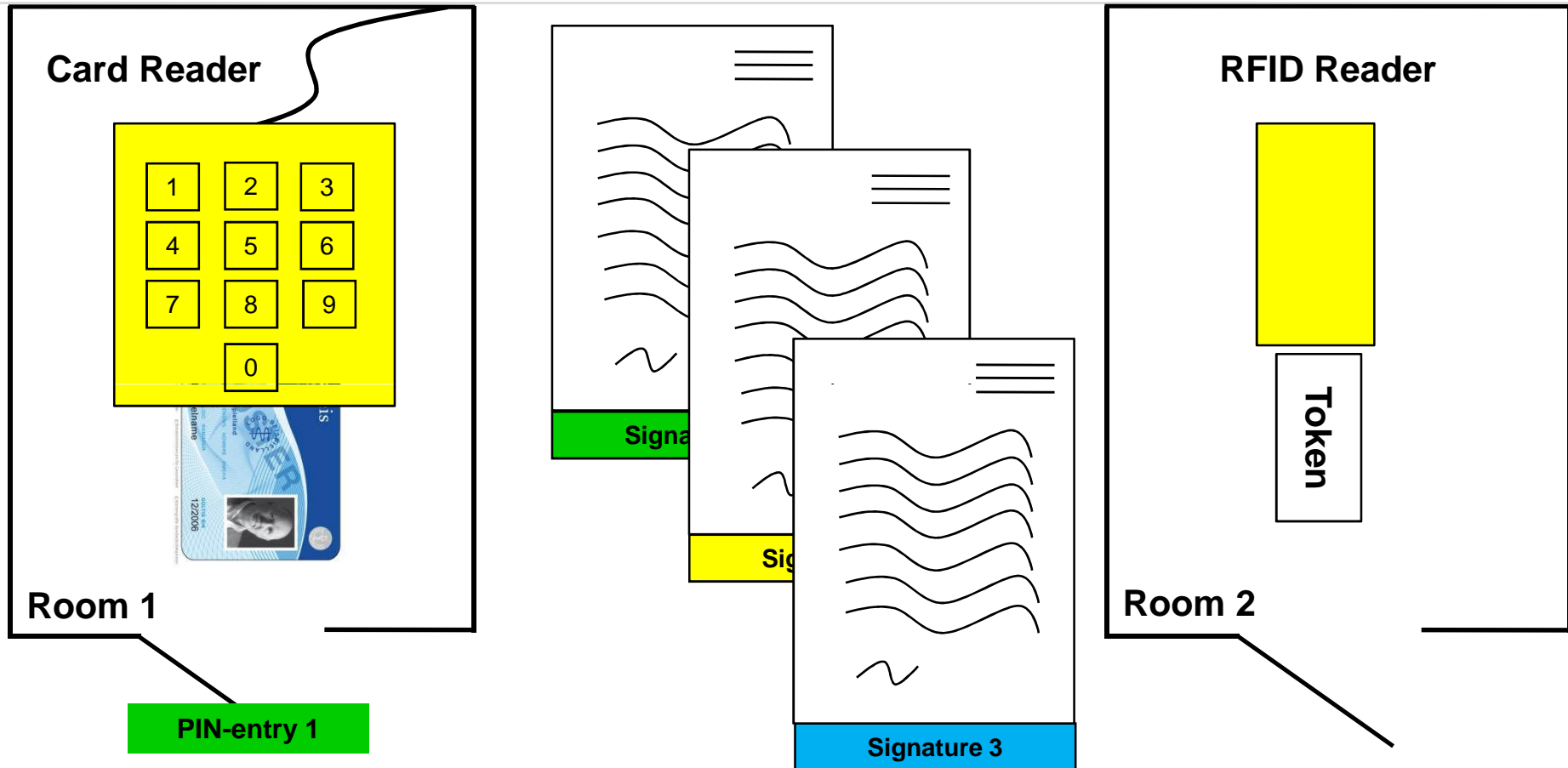
Comfort Signature Procedure

Rollout Scenarios

Basis Rollout

Basis Rollout eHC

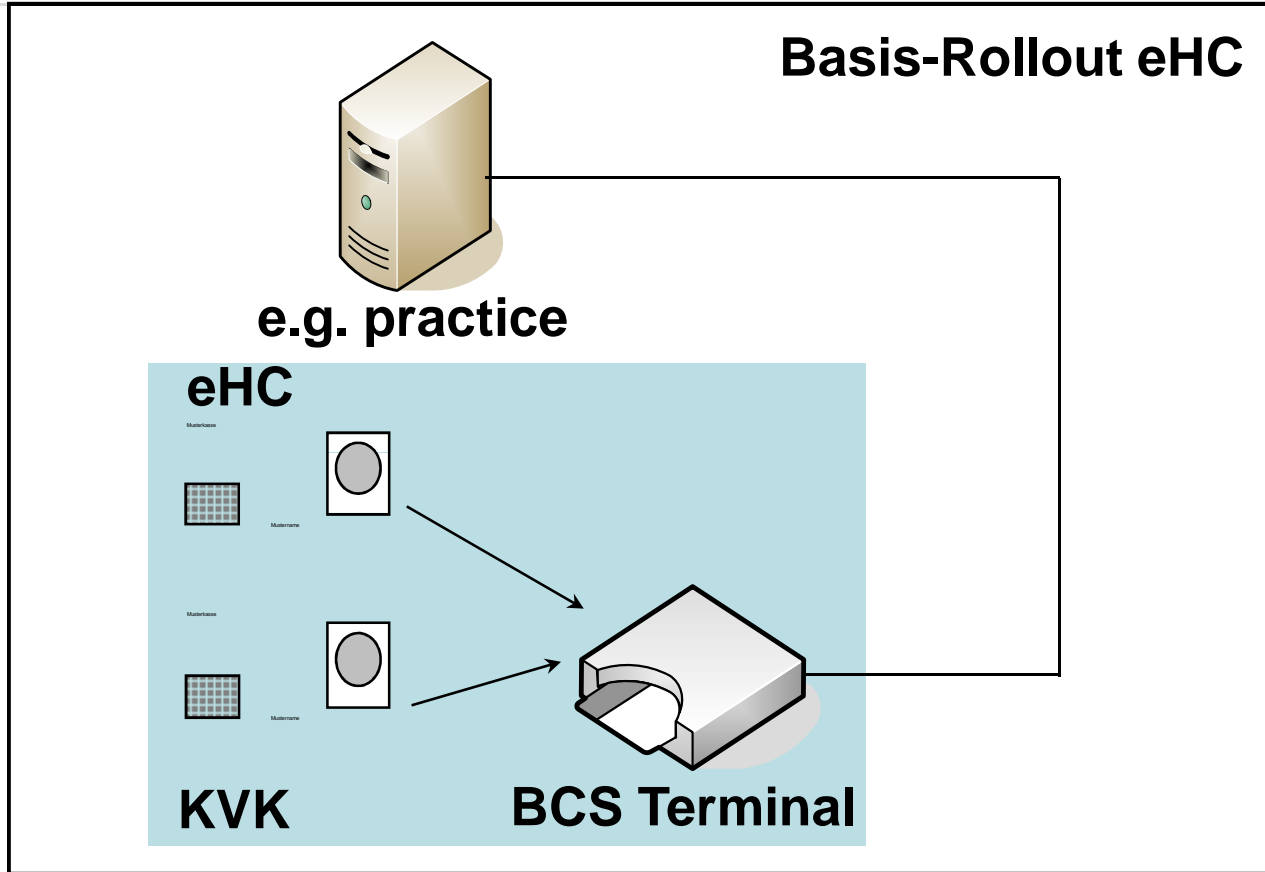The Basis Rollout will start in the region of North Rhine in 2009

Components to be distributed
- Card Terminals to all doctor´s practices and hospitals
- Adapted Software for the computer systems in all doctor´s practices and hospitals
- Electronic Health Cards (eHCs) for all insured persons

Services
- Reading of unprotected data from the eHC
- Reading of the (old) Krankenversichertenkarte (KVK)

Basis Rollout

- **Reading of administrative data**

Basis Rollout

Federal Republic of Germany

Basis Rollout eHC

1. **North Rhine**

2. **Bremen, Lower Saxony, Rhineland-Palatinate, Westfalia-Lippe**

3. **Baden-Württemberg, Hamburg, Hesse, Mecklenburg-Western Pomerania , Saarland, Saxony-Anhalt, Schleswig-Holstein, Thuringia**

4. **Bavaria, Berlin, Brandenburg, Saxony**

Online Rollout

Online Rollout

The Online Rollout will start in 2010

Components being available from the Basis-Rollout
- Card Terminals (Upgrade through Firmware)
- Adapted Software for the computer systems in doctor´s practices and hospitals
- electronic Health Cards (eHC)

Components to be distributed for the Online Rollout
- Connectors
- Adapted Software for the computer systems in doctor´s practices, pharmacies and hospitals
- Health-Professional Cards (HPC)
- Secure Module Cards (SMC)
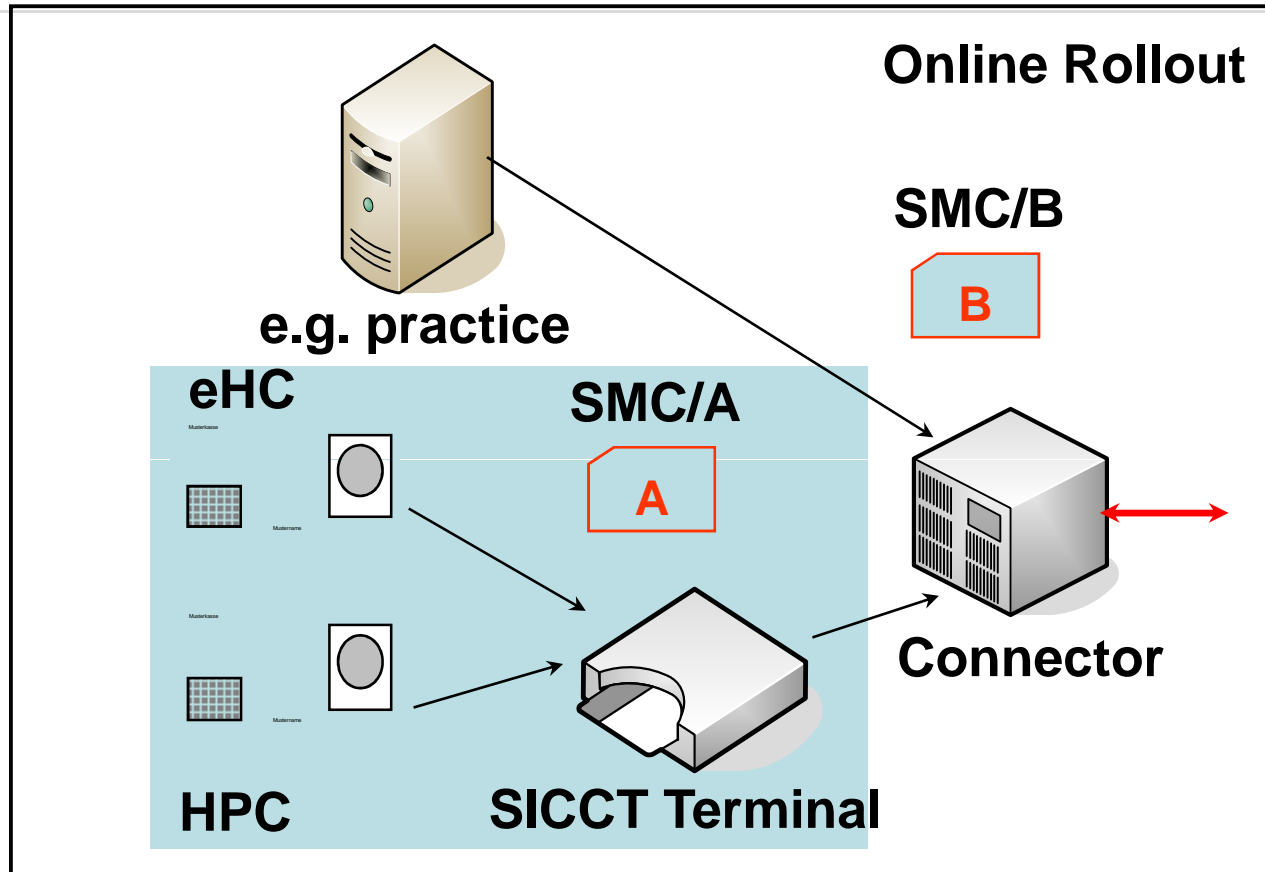
Online Rollout

Online Rollout

The Online Rollout will start in 2010
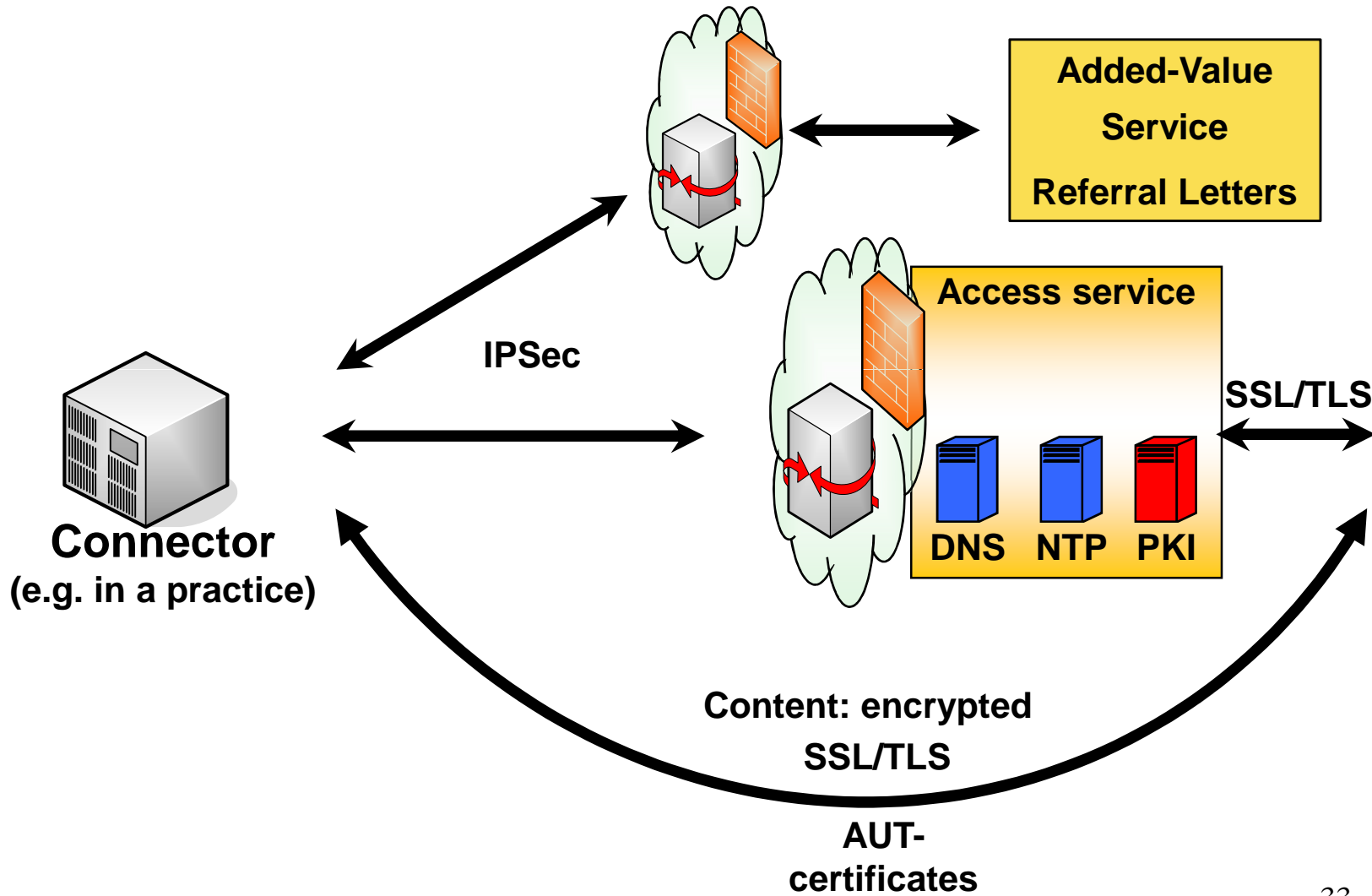
Additional Services
- Online Update of Patients Data
- Use of a value added service:
  distribution of referral letters with electronic signature

Online Rollout

- **Reading and updating (online) of administrative data**
- **Referral Letters**

Online Rollout

Added-Value Service Referral Letters

Access service

DNS   NTP   PKI

Connector
(e.g. in a practice)

IPSec

SSL/TLS

Content: encrypted
SSL/TLS

AUT-
certificates

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Online Rollout

SSL/TLS   **Access Service**   SSL/TLS   **Broker**   SSL/TLS

DNS NTP PKI

Broker Trusted TMS OIDD
Services

Content: encrypted
AUT-
certificates

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Online Rollout

Broker

Broker   Trusted Services   TMS   OIDD

SSL/TLS

VSDD *(NN)*
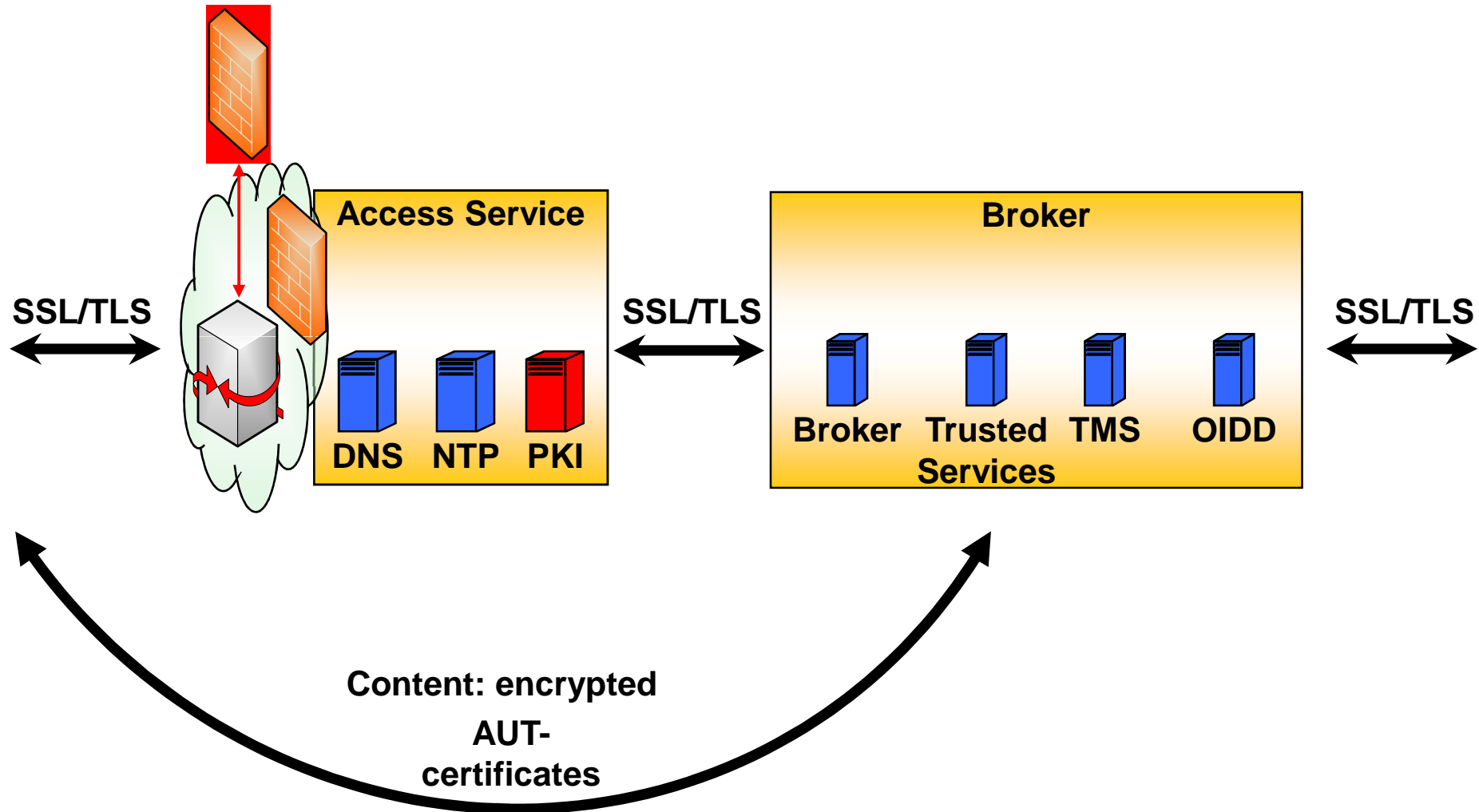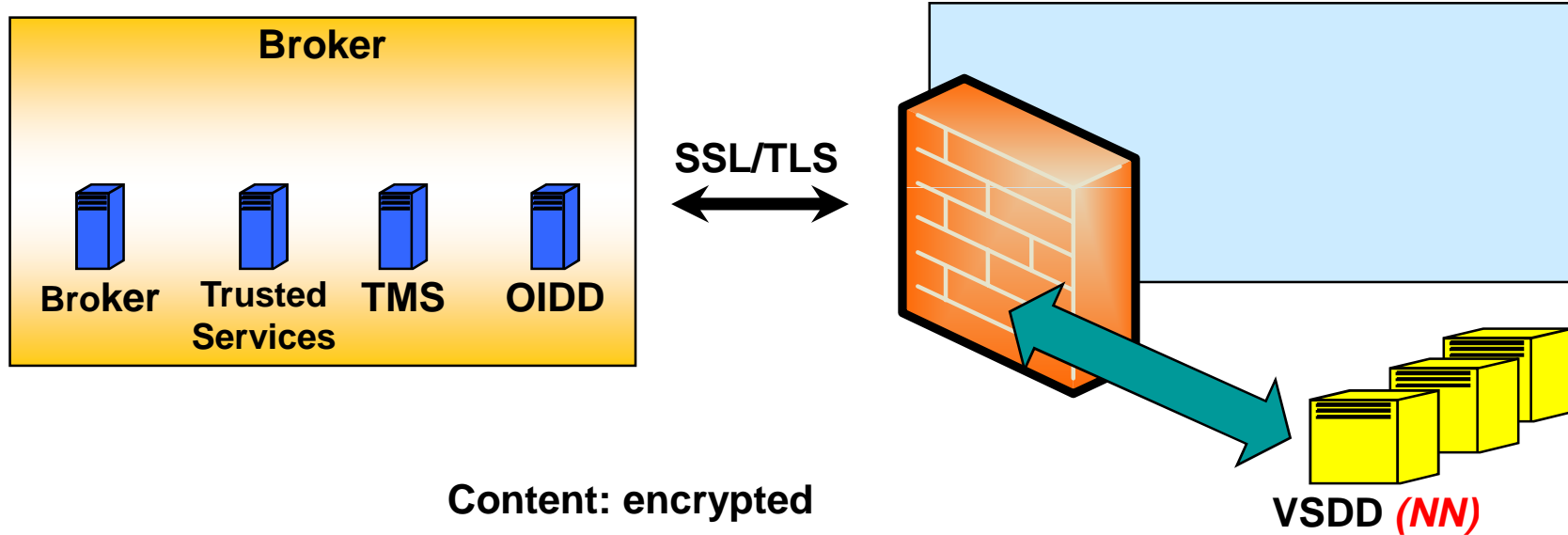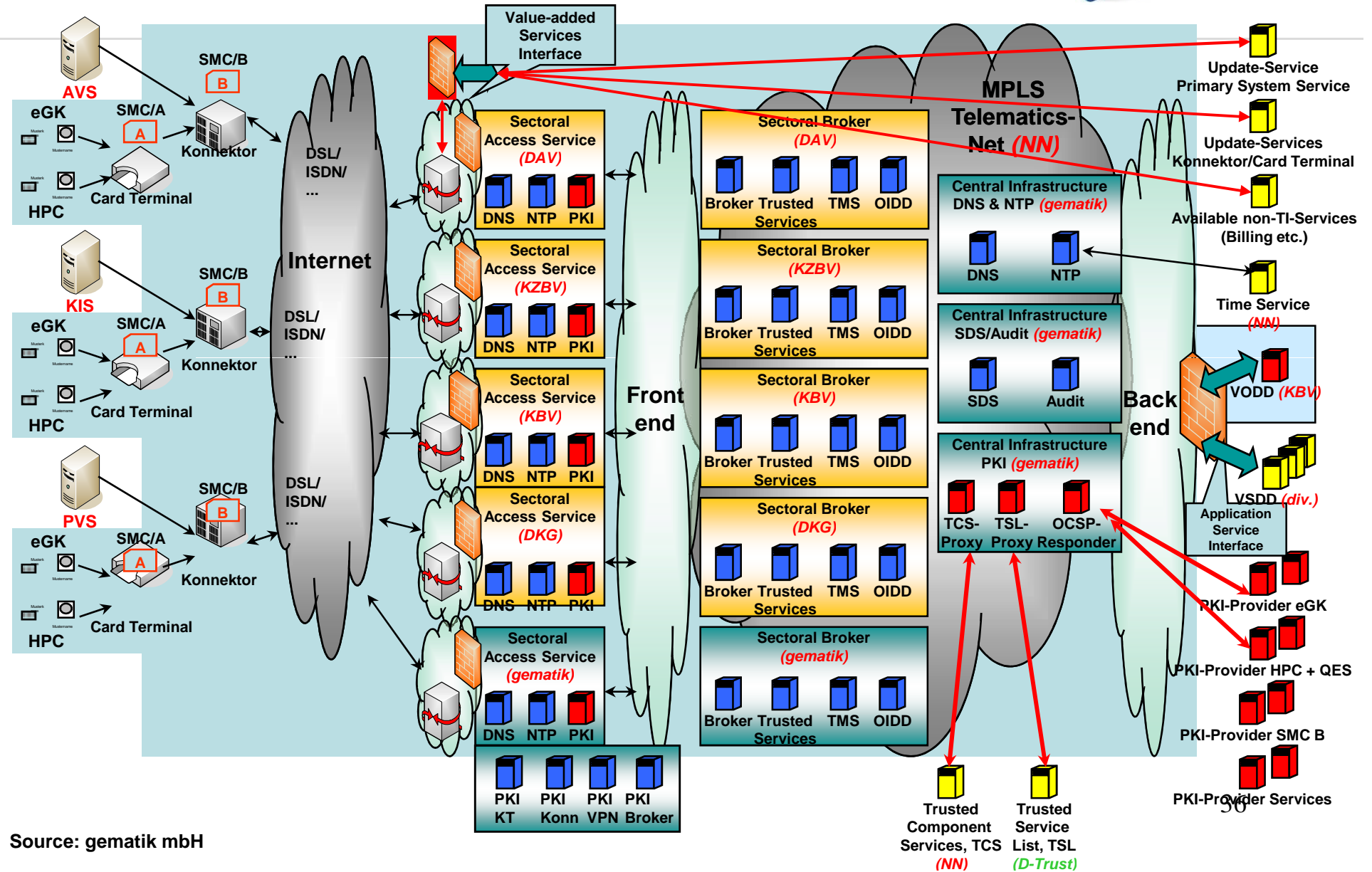
Content: encrypted

sender:
ensured person: pseudonym

Infrastructure

Source: gematik mbH

Test Regions

Ongoing Tests

The tests in the test regions will go on.

Components being tested

- Card Terminals
- Connectors
- Adapted Software for the computer systems in medical institutions
- electronic Health Cards (eHC)
- Health-Professional Cards (HPC)
- Secure Module Cards (SMC)

Test Regions

Ongoing Tests

The tests in the test regions will go on.

Tested Services
- Online Update of Patients Data
- ePrescription stored on the eHC
- Emergency Data stored on the eHC

Conclusion

The electronic Health Card in Germany is going to start

Thank you for your attention

Dr.Harald Ahrens

Phone: +49-911-9965-5150

Fax: +49-911-9965-5152

E-Mail: harald.ahrens@signcard.com

SignCard GmbH & Co KG

Nürnberger Straße 1

D-90547 Stein

Internet: www.signcard.com