

ENUM in Poland

CENTR TECHNICAL WORKSHOP
BRUSSELS

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NASK - background

- R&D, State organization**
- Non for profit**
- NASK is the administrative & technical contact for 8.4.e164.arpa and .PL domain name.**
- NASK is the ISP/TSP (hosting, Internet Access, IP Transit, Corporate Networks, Collocation, Videoconference, VoIP services etc.)**

Production User ENUM Registry launch

May 19, 2004

History

- **+48 Delegated: July 18, 2002,**
- **Trial started: July 2002,**
- **July 2002 – May 2004: Consultations with NRA (URTiP) and TSPs including:**
 - **Discussions and negotiations with the Ministry of Infrastructure and NRA**
 - **Two presentations for „Numbering WG” (WG consisting of all Polish TSPs and the NRA),**
 - **Presentations and face-to-face meetings with TSPs**
 - **ENUM-EPP Registry system development & deployment**
 - **ENUM-EPP Registrar system development (*NASK's Partners*)**
 - **Private trial conducted by NASK (Asterisk, PhoneBook for mobile phones etc)**
- **Production registry launch: May 19, 2004.**

Types of applications in the trial based on ENUM

- **EPP Registry system (*NASK: development*)**
- **Cost optimization solutions (*NASK, Warsaw University of Technology: R&D project*)**
- **VoIP – Asterisk (*NASK: testing*)**
- **Number Portability solutions (*NASK: development*)**
- **Phone Book (*NASK: development*)**

Implementation background

- New Telecommunication Law - valid since July 18, 2004 - implementing EU Directives

http://www.mi.gov.pl/prezentacje/jednostki/1/dokumenty/ustawa_ang.pdf

- Consultations with the Office of Telecommunications and Post Regulation,
- Only valid E164 numbers assigned by Office of Telecommunications and Post Regulation (URTIP) can be registered.

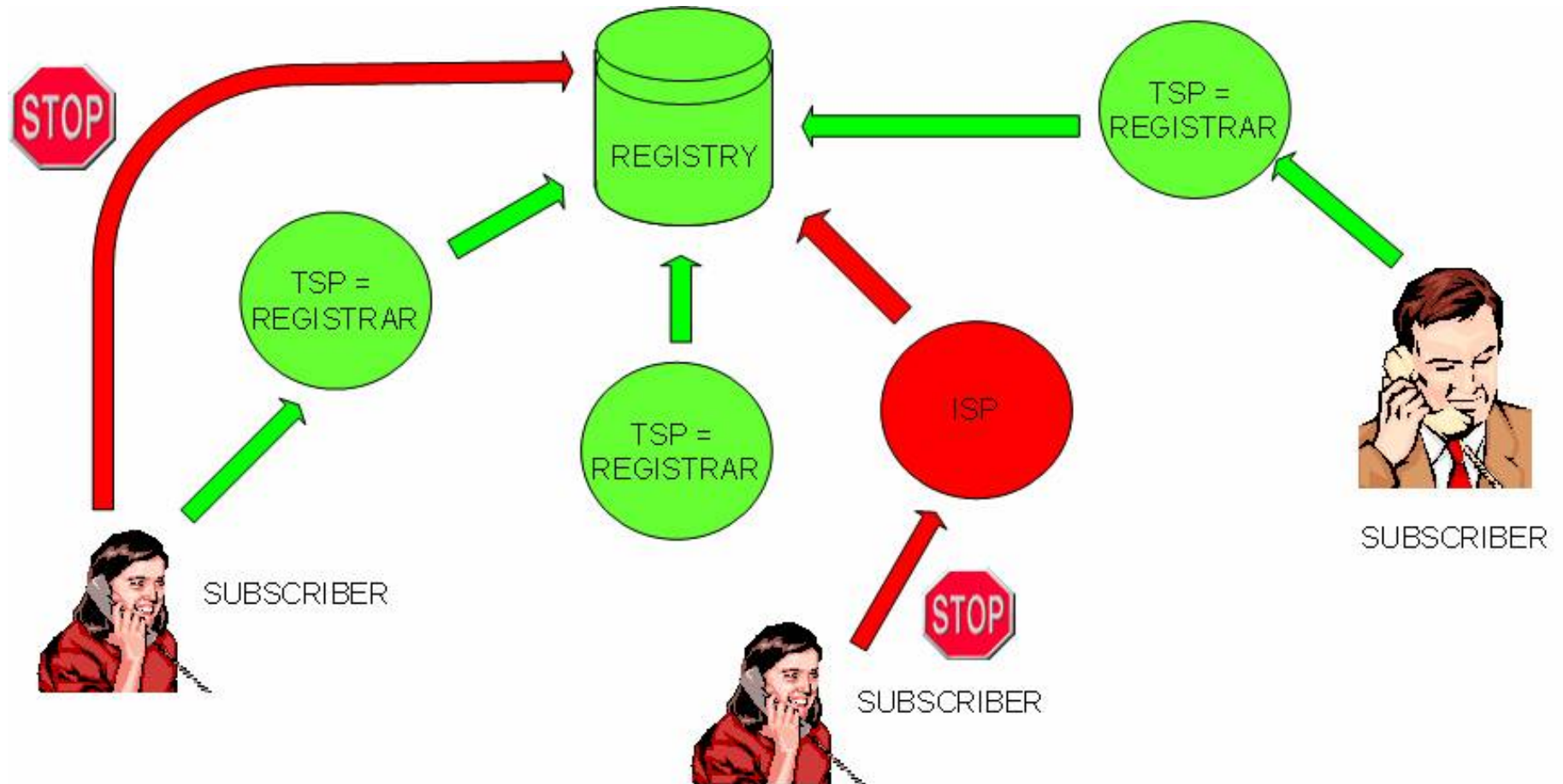
User ENUM Registration rules

- **No direct registrations.**
- **Registration through the TSPs only**
- **TSP can register the numbers belonging to his customers only**
- **NASK delegates ENUM domain names to NS only (no NAPTR records in NASK's zone files)**
- **Annual fee: 5 EURO / domain name**

User ENUM Registration rules cont.

- **NASK accepts all "create" requests from TSPs without validation.**
- **"Update" can be done if the correct "authInfo" is provided by the new TSP.**
- **"Transfer" can be done if the correct "authInfo" is provided by the new TSP.**
- **Generally: If TSP provides the false data, TSP is subject to prosecution (TSP must comply with Telecommunication Act)**

User-ENUM implementation in Poland



**Description of the protocol's
implementation:**

**[http://www.ietf.org/internet-drafts/
draft-bartosiewicz-enum-48tld-01.txt](http://www.ietf.org/internet-drafts/draft-bartosiewicz-enum-48tld-01.txt)**

EPP Modified Elements

- A transfer of a domain or a contact does not require a confirmation of sponsoring client of that object.
- Options of the <domain:transfer> and <contact:transfer> commands other than request are not supported.
- It is possible to delete a host using the <host:delete> command, even if there are domains delegated to that host, on the condition that the host is not configured for any domain which is delegated to this host. A side effect of a removal of a host is removal of all delegations to that host.
- A change of a host's name is forbidden.
- A providing of the <host:chg> element in the <host:update> element causes failure of the <host:update> command.

EPP Modified Elements

- The <domain:info> command returns full set of information only for sponsoring client of a domain and client which provided a correct authorization information in the <domain:authInfo> element. In other cases command fails.
- The <contact:info> command returns full set of information only to sponsoring client of a domain and to client who provided a correct authorization information of domain in the <contact:authInfo> element.
- Furthermore, if contact represents a private person who consents to publish his/her personal details (consentForPublishing=1) then information is returned to the others clients. In other cases command fails

Future plans

- **Number Portability Administration Center for Poland based on ENUM (Infrastructure ENUM)**
- **Signing „registrars” contracts with TSP (User-ENUM)**

Number Portability based on ENUM

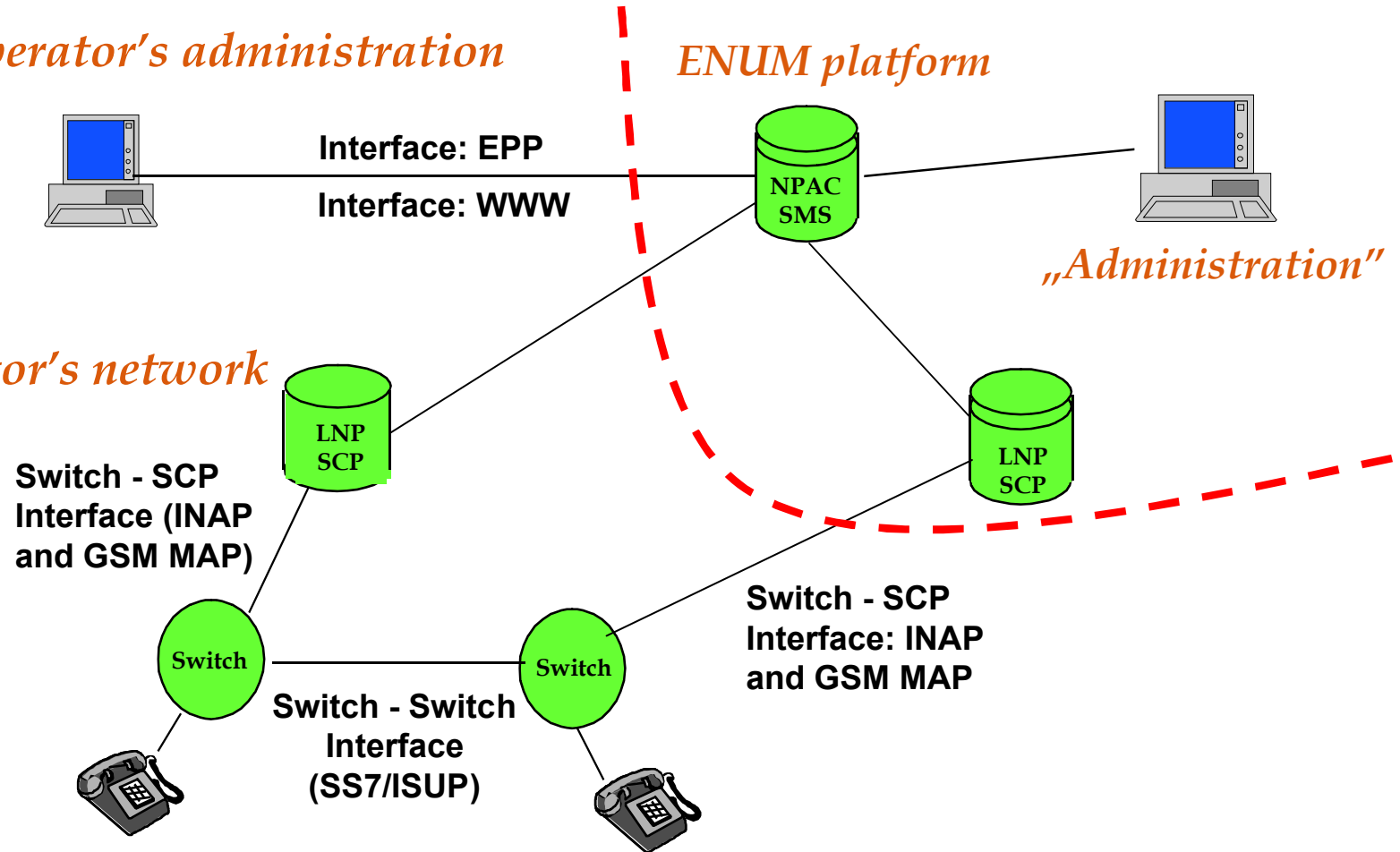
Number Portability Administration Center based on ENUM

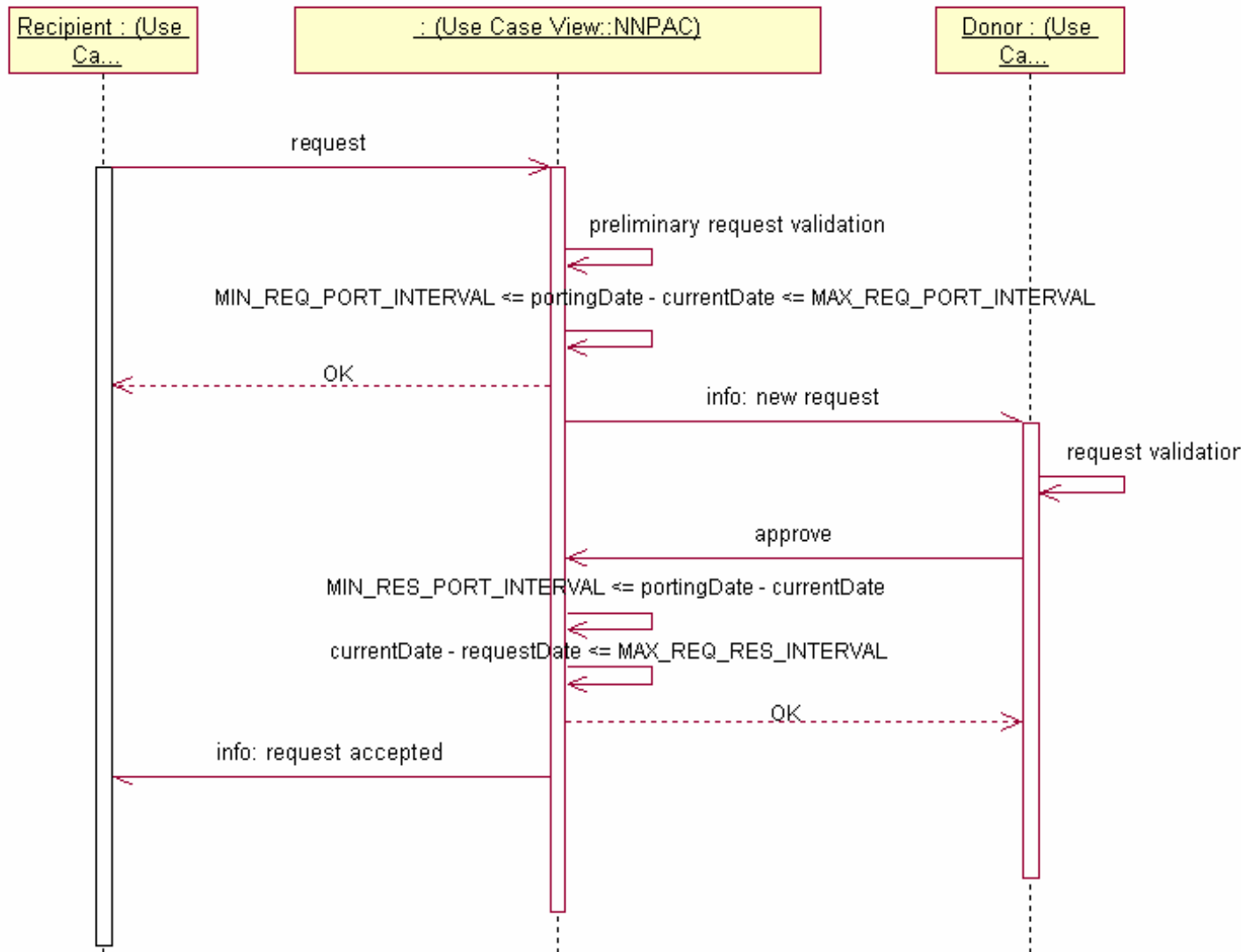
Telecom operator's administration

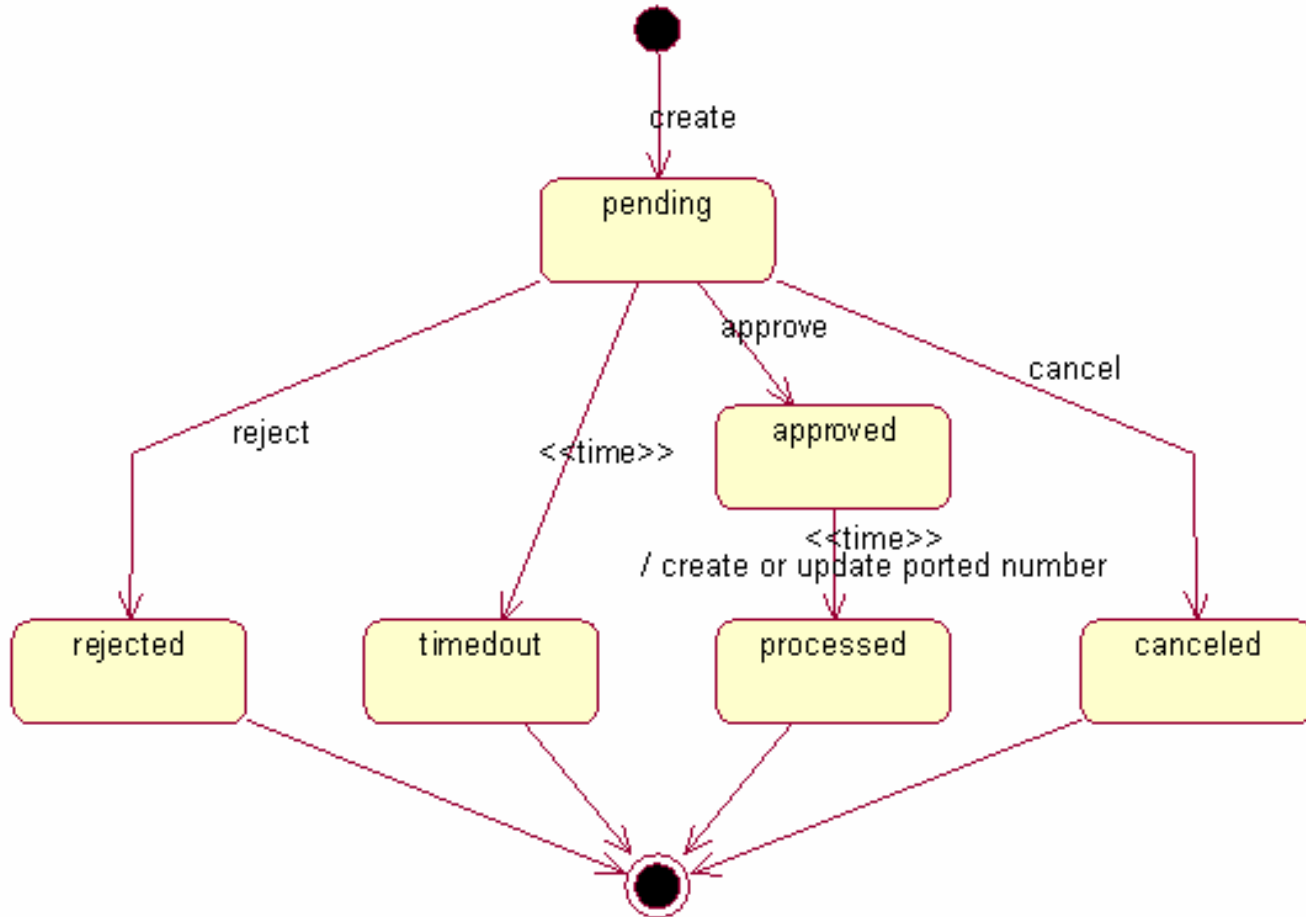
ENUM platform

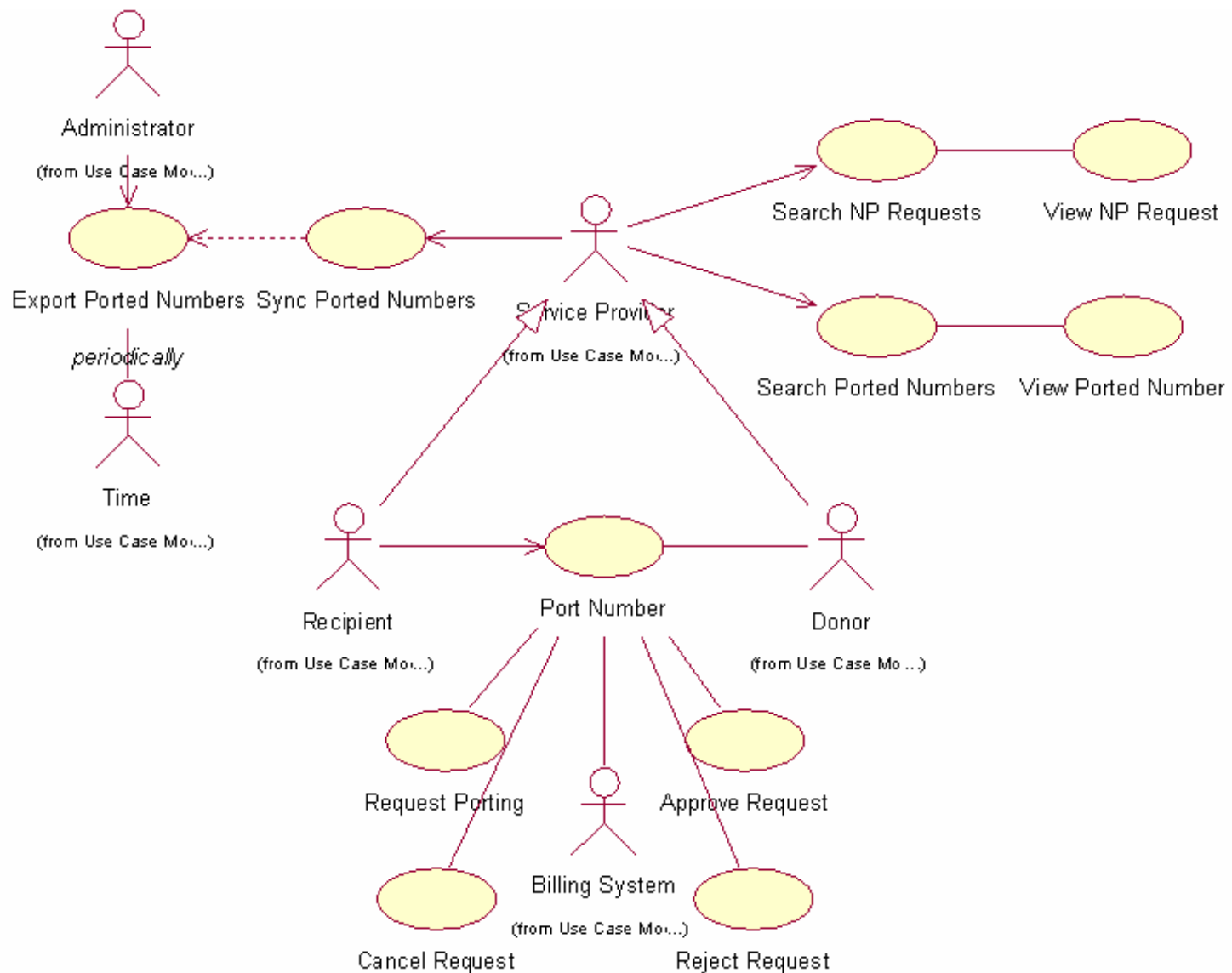
Operator's network

„Administration”





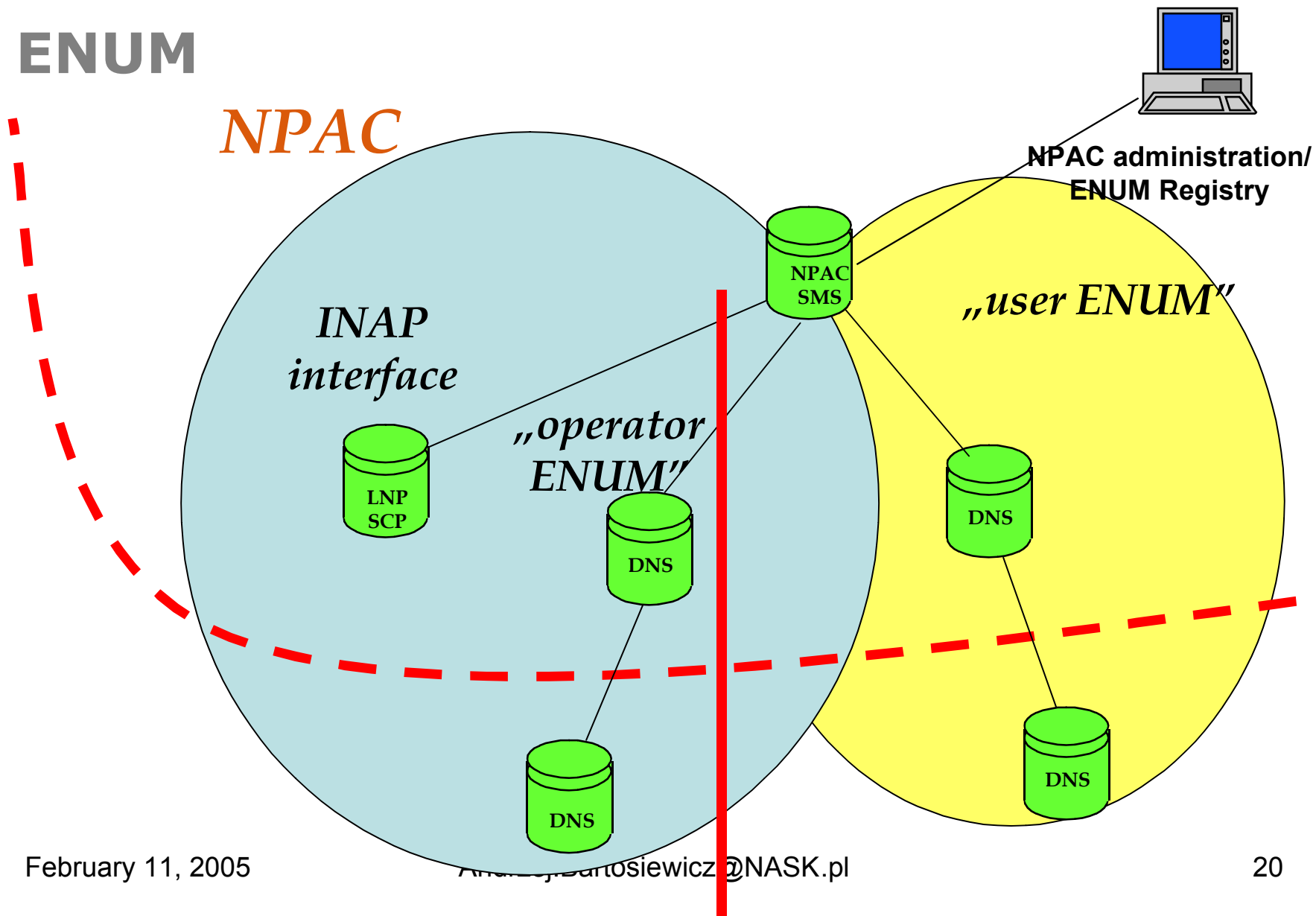




Number Portability Administration Center based on ENUM

- „REGISTRY“: Central reference database for:
 - number portability
 - ENUM
- „REGISTRY“ interfaces: EPP & WWW
- LNP SCP: interface REGISTRY ↔ INAP or GSM MAP

REGISTRY's dual functions: NP & ENUM





Recommendation E.164

- ITU-T Study Group 2 discussion on the **RECOMMENDATION E.164, SUPPLEMENT 2 „Number Portability“**

<http://www.itu.int/md/meetingdoc.asp?type=mitems&lang=e&parent=T05-SG02-050216-D-0009>

More...

**www.dns.pl/english/ENUM/
www.bartosiewicz.pl/ENUM**

CENTR Technical WS, 2005

Additional slides

EPP schema for number portability

CENTR Technical WS, 2005

```
<?xml version="1.0" encoding="UTF-8" ?>
<schema targetNamespace="urn:ietf:params:xml:ns:ptn-1.0"
  xmlns:ptn="urn:ietf:params:xml:ns:ptn-1.0"
  xmlns:epp="urn:ietf:params:xml:ns:epp-1.0"
  xmlns:eppcom="urn:ietf:params:xml:ns:eppcom-1.0"
  xmlns="http://www.w3.org/2001/XMLSchema"
  elementFormDefault="qualified">

<import namespace="urn:ietf:params:xml:ns:eppcom-1.0" schemaLocation="eppcom-1.0.xsd" />
<import namespace="urn:ietf:params:xml:ns:epp-1.0" schemaLocation="epp-1.0.xsd" />

<annotation>
  <documentation>Extensible Provisioning Protocol v1.0 Ported [Portable] Telephone Number [PTN]
  provisioning schema.</documentation>
</annotation>

<!-- requests -->

<element name="create" type="ptn:createType"/>
<element name="update" type="ptn:updateType"/>
<element name="transfer" type="ptn:sNumberType"/>
<element name="delete" type="ptn:sNumberType"/>
<element name="info" type="ptn:sNumberType"/>
<element name="check" type="ptn:mNumberType"/>
```

<!--

The creation of PTN object is equivalent to the porting request.

The recipient sends <ptn:create> with 'request' option, then the request is pending until the donor confirms it sending <ptn:create> with 'approve' option.

February 11, 2005

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CENTR Technical WS, 2005

```
<complexType name="createType">
  <sequence>
    <!-- phone number in E164 format -->
    <element name="number" type="ptn:e164Type"/>

    <!-- optional subscriber identifier -->
    <element name="subscriber" type="string" minOccurs="0"/>

    <!-- routing number, routing prefix? -->
    <element name="rn" type="string"/>

    <!-- optional current service provider (donor) identifier -->
    <element name="spID" type="string" minOccurs="0"/>

    <!-- authInfo? -->
  </sequence>
  <attribute name="op" type="ptn:createOpType" use="required" />
</complexType>

<simpleType name="createOpType">
  <restriction base="token">
    <enumeration value="approve" />
    <enumeration value="cancel" />
    <enumeration value="query" />
    <enumeration value="reject" />
    <enumeration value="request" />
  </restriction>
</simpleType>
```

CENTR Technical WS, 2005

```
<!--  
<ptn:update> command is used to add/remove statuses and/or to change the subscriber.  
-->  
<complexType name="updateType">  
  <sequence>  
    <element name="number" type="ptn:e164Type"/>  
  
    <element name="add" type="ptn:addRemType" minOccurs="0"/>  
  
    <element name="rem" type="ptn:addRemType" minOccurs="0"/>  
  
    <element name="chg" type="ptn:chgType" minOccurs="0"/>  
  </sequence>  
</complexType>  
  
<complexType name="addRemType">  
  <sequence>  
    <element name="status" type="string" minOccurs="0" maxOccurs="unbounded"/>  
  </sequence>  
</complexType>  
  
<complexType name="chgType">  
  <sequence>  
    <element name="subscriber" type="string" minOccurs="0"/>  
  </sequence>  
</complexType>  
  
<complexType name="sNumberType">  
  <sequence>  
    <element name="number" type="ptn:e164Type" />  
  </sequence>  
</complexType>
```

CENTR Technical WS, 2005

```
<complexType name="mNumberType">
  <sequence>
    <element name="number" type="ptn:e164Type" maxOccurs="unbounded" />
  </sequence>
</complexType>
```

```
<!-- child response elements -->
```

```
<element name="chkData" type="ptn:chkDataType" />
<element name="creData" type="ptn:creDataType" />
<element name="infData" type="ptn:infDataType" />
<element name="panData" type="ptn:panDataType" />
<element name="trnData" type="ptn:trnDataType" />
```

```
<complexType name="chkDataType">
  <sequence>
    <element name="cd" type="ptn:checkType" maxOccurs="unbounded" />
  </sequence>
</complexType>
```

```
<complexType name="checkType">
  <sequence>
    <element name="name" type="ptn:checkNameType" />
    <element name="reason" type="eppcom:reasonType" minOccurs="0" />
  </sequence>
</complexType>
```

```
<complexType name="checkNameType">
  <simpleContent>
    <extension base="eppcom:labelType"> <attribute name="avail" type="boolean" use="required" />
  </extension>
</simpleContent>
```

CENTR Technical WS, 2005

```
<complexType name="creDataType">
  <sequence>
    <element name="number" type="ptn:e164Type" />
    <element name="crDate" type="dateTime" />
  </sequence>
</complexType>

<complexType name="infDataType">
  <sequence>
    <!-- phone number -->
    <element name="number" type="ptn:e164Type"/>
    <!-- unique identifier -->
    <element name="roid" type="eppcom:roidType"/>
    <!-- optional subscriber identifier -->
    <element name="subscriber" type="string" minOccurs="0"/>
    <!-- routing number, routing prefix? -->
    <element name="rn" type="string"/>
    <!-- statuses -->
    <element name="status" type="string" minOccurs="0" maxOccurs="unbounded"/>
    <!-- donor identifier -->
    <element name="dnID" type="string"/>
    <!-- current service provider identifier -->
    <element name="spID" type="string"/>
    <element name="crDate" type="dateTime"/>
    <element name="upID" type="string"/>
    <element name="upDate" type="dateTime"/>
    <element name="trDate" type="dateTime"/>
  </sequence>
</complexType>
```

CENTR Technical WS, 2005

```
<complexType name="panDataType">
  <sequence>
    <element name="number" type="ptn:paNameType" />
    <element name="paTRID" type="epp:trIDType" />
    <element name="paDate" type="dateTime" />
  </sequence>
</complexType>

<complexType name="paNameType">
  <simpleContent>
    <extension base="eppcom:labelType"> <attribute name="paResult" type="boolean"
      use="required" /> </extension>
  </simpleContent>
</complexType>

<complexType name="trnDataType">
  <sequence>
    <element name="number" type="ptn:e164Type" />
    <element name="trStatus" type="eppcom:trStatusType" />
    <element name="reID" type="eppcom:clIDType" />
    <element name="reDate" type="dateTime" />
    <element name="acID" type="eppcom:clIDType" />
    <element name="acDate" type="dateTime" />
  </sequence>
</complexType>

<simpleType name="e164Type">
  <restriction base="token">
    <pattern value="(\+[0-9]{1,3}\.[0-9]{1,14})?" />
    <maxLength value="17" />
  </restriction>
</simpleType>
```