Development and Introduction of OSSs
-Dreams Realities and Expectations-

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NTT West
outline

• Recent IP service in Japan and NTT-West
• Recent OSS development in NTT-W
  – approaches
  – results
• Further challenges
  – TMF approach
  – NTT-W approach
• NTT-W approach
  – Simplification of OSS
  – Loose integration among OSSs
  – Revival of “internal development”
• Expectations towards APNOMS
Current telecom service in Japan (internet access)

<table>
<thead>
<tr>
<th>Number of Broadband Access Subscribers (in million)</th>
<th>DSL</th>
<th>FTTH</th>
<th>CATV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jul. 2002</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Jul. 2003</td>
<td>8.540,000</td>
<td>1,710,000</td>
<td>531,000</td>
</tr>
<tr>
<td>Change from Jul. 2002</td>
<td>2.4</td>
<td>1.3</td>
<td>6.3</td>
</tr>
</tbody>
</table>

Harsh price competition, charge free, discounting setup charge, etc.

Market share of NTT-G = 37% (as of Jul. 2003)

Source: Ministry of Public Management, Home Affairs, Posts and Telecommunications HP
Example of IP service in NTT-W

Regional IP network
- content distribution server
- Group server (CUG)
- communication server
- ADSL access
- Fiber access
- ISDN access
- Wireless access

private cooperate network

NTTWEST

IP service OSS

The Internet

SPs
Example of IP-service OSS in NTT-W

mapping to eTOM Level2

Customer relationship management process (without “marketing fulfillment response”, “customer QOS/SLA management”, “billing and collection management”)

other service OSSs

legacy

billing collection

make use of COTS proprietary APIs

resource handling

service activation

service rating

request handling

customer web if

customer

NTT-W operator

document data

NE server

:OSS subsystem

reference: Enhanced Telecom Operations Map™ (eTOM) - GB921 v3.5 (TM Forum)
## Approaches and Results

### Approaches
- Process definition by using TOM
- Introduction of PKG software
- Introduction of open systems
- Decentralization

### Results
- Rapid development and deployment
- Rapid introduction of new services
- OSS development cost reduction
- Rich scalability

### Increase in Customer

<table>
<thead>
<tr>
<th>Year</th>
<th>DSL</th>
<th>FTTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2001</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2002</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2003</td>
<td></td>
<td></td>
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</tbody>
</table>

### Introduction of New Services

<table>
<thead>
<tr>
<th>Year</th>
<th>Service</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td></td>
</tr>
<tr>
<td>2001</td>
<td></td>
</tr>
<tr>
<td>2002</td>
<td></td>
</tr>
<tr>
<td>2003</td>
<td></td>
</tr>
</tbody>
</table>

- ▲ 8M ADSL
- ▲ FTTH new menu
- ▲ multi-PPPoE
- ▲ wireless
- ▲ CUG
- ▲ 12M ADSL
- ▲ communication
- ▲ discount charge
- ▲ Inter-prefecture Connections

More than 10 services within a year

Source: NTT-W HP
Challenge going forward

- Rich scalability
- Strengthen Customer Retention
- Faster, more efficient operations

- OSS development cost reduction
- Rapid development and deployment
- Rapid introduction of new services

Further improvement

and

- Increase revenue
- Decrease expenses
Approaches and Expectations

**TMF approach**

- NGOSS
  - eTOM(GB921)
  - SIM(GB914)
  - SID(GB922), etc.
- Service Provider Leadership Council

**Vision**

Sharing information of common interest between SPs, producing requirements that will drive the NGOSS program, etc.

**NTT-W approach**

- Simplification of OSSs
- Loose integration among OSSs
- Revival of "internal development"

*something else?*
Simplification of OSSs

- Simplicity of supporting business process
- Simplicity of business logic/function logic
- Simplicity of architecture
- Simplicity of database schema

Development of service independent simple OSS

Customization into service dependent simple OSS

Introduction of service-A

Introduction of service-B

Simple OSS for service-A

Simple OSS for service-B

Loose integration among OSSs

Front end integration platform

Back end integration platform

Autonomously Decentralized Operation Support Systems/subsystems

ex. EIP

ex. EAI, EII
Revival of “internal development” (1/2)

back ground

• Difficulty in making consensus with SIers
• Further shorten upgrade cycles in OSS
• Emergence of sophisticated integrated design environment
  • Eclipse, etc.
• Harsh competition with other SPs/CLECs

ref: http://eclipse.org/
Revival of “internal development” (2/2)

OSS development cycle

<table>
<thead>
<tr>
<th>Overall OSSs grand design</th>
<th>requirement analysis</th>
<th>external design</th>
<th>internal design</th>
<th>code and unit test</th>
<th>subsystem integration test</th>
<th>system integration test</th>
<th>overall OSSs integration test</th>
</tr>
</thead>
</table>

past

internal

outsourced to SIer

future?

?
How approaches meet challenges?

challenges

- Rapid development and deployment
- Rapid introduction of new services
- OSS development cost reduction
- Rich scalability
- Faster, more efficient operations
- Strengthen Customer Retention

approaches

- TMF
- NGOSS
- SPLC

- Simplification of OSSs
- Loose integration among OSSs
- Revival of “internal development”

something else?
Expectation toward APNOMS

- SIer
- academic
- SP
- OSS development

- ISV
- prototype level
- commercially available level
- commercially accepted level

- close mutual interchange
- conceptual level
- simulation level

- APNOMS
Summery

- OSS development evolution
  - making steady progress but not enough,

- How to drive/promote the evolution
  - TMF approach
  - NTT-W approach
  - something else?
Thank you for your attention.
appendix
Problems in introduction of COTS

- difficulty in optimal selection
- difficulty in “fit and gap”
- high cost
- no warrant in continuous support
- insufficient localization

- large add-on coding
- unclear specification (black black box)
- conflict with other COTS

development life cycle

- necessity of large hardware resources than expected
- insufficient quick response
- insufficient performance
- functional gap from expected

- debug of COTS
- add-on coding for avoiding bug of COTS
- long period of test phase
Classification of data reference among OSSs

FLET’S ADSL (NTT-E/W internet access service using ADSL)

source: NTT-W HP
B FLET’S (NTT-E/W internet access service using optical fiber)

(family type)

Monthly Charges

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<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Line service charge</td>
<td>¥4,300</td>
</tr>
<tr>
<td>Internal wiring usage charge</td>
<td>¥200</td>
</tr>
<tr>
<td>Optical network unit (ONU) rental charge</td>
<td>¥900</td>
</tr>
</tbody>
</table>

Start-Up Cost

- Contract fee: ¥800
- Installation charge (may differ): ¥27,100
Monthly charges ¥800 (per subscription)
Installation charges Standard plan: ¥2,000
High Security planIEEE802.1x: ¥3,000
IP service OSS mapped to eTOM

Customer interface management

- Selling
- Marketing
- Fulfillment
- Order handling
- Problem handling
- Customer QoS/SLA management
- Billing & Collection management

Retention & Loyalty

- Service Configuration activation
- Service Problem management
- Service quality management
- Service & Specific instance rating

Resource provisioning

- Resource Trouble management
- Resource Performance management

Resource data collection & processing

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