“IPDB” Project
real-time session/user management system for KDDI mobile service

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KDDI's Business Vision: Three “Multi” Strategy

Multi - Use

- diverse services and contents
- seamless access and optimized network
- any device of choice

Multi - Network

Multi - Device
• In the year ended March 31, 2012, KDDI addressed the priority issue of recovering au momentum and enhancing our shift toward smartphones.
Unit sales of smartphones in the year ended March 31, 2012, surged by 4.54 million units, to 5.63 million units. Furthermore, we forecast smartphone sales of 8 million units for the year ending March 31, 2013.
Multi-Use: Need user profile

Multi-Network: IP address is dynamically assigned

Multi-Device: Independent of terminal specifications

We have to identify the user profile by assigned IP address in real-time.
Identify the user by assigned IP address

Packet Data Network Gateway → WEB Proxy → Session Information by RADIUS

IPDB
- IPDB AAA
  - IP address and IMSI
- INSERT or DELETE

IPDB TimesTen

SELECT some user properties from IP address

Billing System

Service Provisioning System
- IMSI and user properties

Exadata

CACHE

IMSI: International Mobile Subscriber Identity
Production deployment results

7,000TPS

IPDB
AAA

Write

IPDB
TimesTen
Active

RETURN TWOSAFE replication

Auto Refresh

Exadata

18,000TPS (POC test result)

35,000TPS

Read

TimesTen
Client

Asynchronous Write Through

IPDB
TimesTen
Standby
## Requirements Specification for IPDB-TimesTen

<table>
<thead>
<tr>
<th>Requirements</th>
<th>Results/Solutions</th>
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<tbody>
<tr>
<td><strong>Consistent Latency</strong></td>
<td>Less than 10msec</td>
</tr>
<tr>
<td><strong>Write Transaction</strong></td>
<td>4,500 TPS</td>
</tr>
<tr>
<td><strong>Read Transaction</strong></td>
<td>10,000 TPS</td>
</tr>
<tr>
<td><strong>Reliability</strong></td>
<td>Active-Standby Synchronous replication</td>
</tr>
<tr>
<td><strong>Active Session</strong></td>
<td>10 million session</td>
</tr>
<tr>
<td><strong>User properties cache size</strong></td>
<td>50 million user</td>
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<tr>
<td><strong>Storing data</strong></td>
<td>Store Session Information to Exadata</td>
</tr>
</tbody>
</table>

- Less than 1msec (Average)
- 7,000 TPS
- 35,000 TPS
- Active Standby Pair RETURN TWOSAFE replication
- depends on physical memory size
- depends on physical memory size
- Asynchronous Write Through