SI – TELECOM

CASE STUDY- CDR Project and GSM Phase V

Customer –

Biggest Operator in India in this LOB
CASE STUDY

PROJECT: BSNL CASE STUDY – CDR and GSM Phase V

CLIENT: BSNL

BY: HCL – SI TELECOM

RFP NO.: 

www.hcl.com  $5.3 BILLION ENTERPRISE  71,000 PROFESSIONALS  OPERATIONS IN 29 COUNTRIES
Overview:

BSNL, state owned telecom operator, largest telecom operator in India for Wire-line and Broad-band business, undertook an initiative to implement a convergent BSS / OSS solution to replace it’s distributed SSA (Secondary Switching Area: equivalent to city) based IT systems working in silos to be integrated into one common standard processes based IT stack. The implementation resulted in BSNL saving costs through reduction of 337 city based Data Centres into 4 Data Centres, reduction in number of errors due to the standardization of processes, common documented processes and leverage of people. The centralized IT solution helped BSNL to make swifter decisions in the ever changing and extremely competitive telecom market in India through uniform reports across country. Most importantly the new system will lead to better quality of customer service and ensure high customer satisfaction.

Challenge:

Technologically project is one of the most complex projects ever executed in the Telecom OSS/BSS space. It includes 4 DCs and integrating with more than 3000 Exchanges across country. In every location, a different application was being used which had to be replaced with common stack of applications. Furthermore, never before a single project has a single project impact of greater than 1.5 lacs stakeholders bringing to fore the need of change management.

The internal processes had to be aligned since the existing applications operated in silos with complex and different operation and processes.

The biggest challenge during the project was dealing with change management processes since the change management catalyst had to be identified at each of the 334 SSAs. The changes management process was even more complex due to unionised nature of the workforce. The stakeholder expectations had to be managed during and after the transition. Also, during the migration process rigorous training had to be performed so that the existing employee base adapts to the new processes. The existing skills sets were mapped to unified and standard processes and technology.
Implementation: Technology, People and Processes

HCL has strived towards ensuring that efforts in the three key areas are given equal weightage to ensure the transformation at the organizational level.

Technology, wise the project had enormous complexity due to the number of elements involved in the solution stack along with the migration process done from the disparate legacy systems being done to the new standard Solution.
Following is the list of technologies deployed for implementing the given architecture.

<table>
<thead>
<tr>
<th>Requirement</th>
<th>OEM Products</th>
<th>Requirement</th>
<th>OEM Products</th>
</tr>
</thead>
<tbody>
<tr>
<td>Billing</td>
<td>Comverse – Kenan FX</td>
<td>CRM &amp; WSC</td>
<td>Siebel</td>
</tr>
<tr>
<td>Accounting</td>
<td>Oracle Financial</td>
<td>IVRS</td>
<td>Nortel</td>
</tr>
<tr>
<td>Bill Formatting</td>
<td>Pitney Browse</td>
<td>EAI</td>
<td>Oracle</td>
</tr>
<tr>
<td>Mediation</td>
<td>CSG</td>
<td>Identity &amp; Access</td>
<td>HP</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Management</td>
<td></td>
</tr>
<tr>
<td>Electronic Stapling</td>
<td>Pitney Browse</td>
<td>SMTP &amp; DNS</td>
<td>Red Hat</td>
</tr>
<tr>
<td>Provisioning &amp;</td>
<td>Clarity</td>
<td>LDAP, Gateway, HTTP</td>
<td>Red Hat</td>
</tr>
<tr>
<td>Inventory</td>
<td></td>
<td>&amp; Reverse Proxy</td>
<td></td>
</tr>
<tr>
<td>Revenue Assurance</td>
<td>Connectiva</td>
<td>SACS</td>
<td>SYMARK - Power</td>
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<td></td>
<td></td>
<td></td>
<td>Broker</td>
</tr>
<tr>
<td>IOBAS</td>
<td>Intec</td>
<td>NACS &amp; AAA Server</td>
<td>CISCO</td>
</tr>
<tr>
<td>Messaging Platform (SMS)</td>
<td>Jataayu</td>
<td>EMS / NMS</td>
<td>HPOV</td>
</tr>
</tbody>
</table>
The process re-engineering process defined the core process, which were enabled through implementation of the technology stack. The re-engineering process involved a comprehensive organization transformation driven by the business requirement for the need of convergent billing.
At the core of activity was re-engineering of the existing processes which had three major parts to it: creation, updating of manual/guideline, redefinition of roles and identification of skill sets and evolving new service level agreement. The re-engineering process was driven by communication, stakeholder analysis and benefit management driving the change management process within the organization leading to alignment of people towards the new processes and the technology.
The flow above shows one of the instance of communication plan used to ensure that the migration process at each of the SSA’s was successful with the relevant stakeholders and the change management champions driving the change request. Similar communication plan was prepared for each of the communication paths to ensure the process engineering was a success.

Communication, stakeholder analysis and change management have been key to the successful change management leading to implementation of the processes resulting in delivery of business goals.

**People** formed the major cornerstone of the entire project execution since it is a major transformational effort for BSNL. The existing processes of the billing were changed leading to change in
- graphical user interface change,
- MCU to CDR based billing system,
- Invoice based billing system to balance forward billing system.
- Unique experience of Self Service

The implementation of the project has impacted
- 38 million users that were customers of BSNL
- 150 K users (employees) of BSNL.

To implement the change management process, HCL ensured that the processes were designed in consultation with the major stakeholders within the organization. There was 100,000 person days of formal training conducted for the people impacted by the implementation of the new solution. Also, 5000 person days of awareness training was conducted to educate the internal stakeholders about the key benefits of the new systems and the processes for solution acceptance. HCL has successfully has brought the right attention from top management through their consulting arm to ensure that best practices approaches are accepted for effective implementation / utilization of COTS.
Overview:

BSNL, state owned telecom operator, largest telecom operator in India for Wire-line and Broad-band business. BSNL, due to rapid growth in their GSM customer base over the years undertook the expansion effort. The GSM communication network is under expansion and new MSCs are being commissioned as part of GSM Phase-V expansion plan.

With the increase of subscriber base and the traffic, BSNL will need more power in their Billing and Customer Care applications to manage the customer expectation and also for timely realisation of the Revenue.

This project of BSNL GSM B&CCS expansion was implemented with the objective of increasing the capacity of Billing and Customer Care system and enhance it to cater for 3G services.

Challenge:

The solution was designed with the following guiding principles:

- Minimum disturbance to existing Operations & Maintenance
- Phased Deployment to Minimize Downtime and risk to business
- Maximize usage of Assets
- Investment Protection
- The scope of the project covered following activities.
- Integration of new Network Elements with existing network.
- Expansion of the existing system to provide capacity envisaged in tender and Performance tuning of the Expanded billing system.
- Scaling-up of Kenan Fx Billing Solution as per tender requirements
- Scaling-up of Comverse’s Data Mediation Solution
- Scale-up SRIT’s ICB solution for Interconnect Billing
- Scale-up Remedy S/W for Customer Complaint Management
- Scaling-up of Lucent’s ConnectVu provisioning solution to cater for new Nes
- Integration of Kennan RS, Kennan Total Care and Data Store.
- Implementation and integration of COTS products.

Since the existing system was under Operation and Maintenance, the proposed strategy for upgrade / scale-up needed to be least intrusive. It was advised in different Zonal Meetings of BSNL to start NEs integration on existing hardware and later migrate total customer base on reconfigured HW as per tender.
Further, a solution deployment strategy was devised according to which applications supporting horizontal scalability will be expanded by adding more computing power to existing setup to scale-up horizontally.

Application not supporting horizontal scalability will be expanded by moving to a bigger box. For other applications, deploy the applications on new servers delivered as per Phase 5 tender delivery and use the freed capacity for other purposes.

**Implementation**

The implementation stack involved handling of following components in the software stack:

<table>
<thead>
<tr>
<th>Application Name</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kenan Fx</td>
<td>Billing</td>
</tr>
<tr>
<td>Comverse’s Data Mediation</td>
<td>Data Mediation</td>
</tr>
<tr>
<td>SRIT’s Interconnect Billing</td>
<td>Interconnect Billing</td>
</tr>
<tr>
<td>Remedy</td>
<td>Trouble Ticketing</td>
</tr>
<tr>
<td>MIS</td>
<td>Custom MIS Reports</td>
</tr>
<tr>
<td>Kenan Roaming Application</td>
<td>Roaming Billing</td>
</tr>
<tr>
<td>Lucent’s ConnectVu</td>
<td>Provisioning</td>
</tr>
<tr>
<td>DR</td>
<td>Disaster Recovery</td>
</tr>
<tr>
<td>IDR</td>
<td>Intermediate data recovery</td>
</tr>
<tr>
<td>Bill formatter</td>
<td>Intense</td>
</tr>
<tr>
<td>COTS</td>
<td>Single view(CA)</td>
</tr>
<tr>
<td></td>
<td>Scheduler (CCF)</td>
</tr>
</tbody>
</table>

Following are the advantages of deploying the setup according to the new deployment plan:

**Kenan Admin**

Presently the Kenan Admin is hosted on 16 Core machine with 32 GB RAM. It will be moved to new machine with 16 Cores and 128 GB RAM.

**Kenan Catalog**

Catalog will be moved to new server with 16 Core and 128 GB memory.

**Kenan Customer Servers**

12 new CS instances will be created on new hardware. The Application and Database will be hosted on separate machines. There will be 6 Application servers and 6 DB servers each hosting to Application/DB instances. The Storage allocation to each CS instance will be 2.1 TB in accordance with the CSG guidelines.
**Kenan Roaming**

Roaming Server will be split in App and DB servers. Roaming App Server will be hosted on a machine with 26 Cores and 208 GB memory whereas the DB server will be hosted on 8 Core 64 GB machine, both on new hardware.

**Data Mediation**

Two instances of Data Mediation will be created on new hardware. These will cater for complete business workload.

**ConnectVu Provisioning**

ConnectVu server will be installed on new hardware.

**Interconnect Billing**

ICB will remain on Phase IV++ hardware but the allocated CPU, memory and storage will be enhanced.

**Data warehouse**

Data Warehouse will be allocated a larger machine while its storage will remain as it is on EVA.

There was a comprehensive detailed migration plan which was devised to ensure successful migration of the solutions to a more scaled up version of hardware.
For testing purpose, online CDRs were processed in parallel in new and old billing system. Tariff for all plans and were checked against production data. All other billing scenarios such as payments, adjustments etc were tested as per the functional test cases agreed with BSNL. Provisioning interface was tested with new ConnectVu setup. Agreed test cases for all existing billing functionality were executed and verified.