BSNL achieves 99.9 percent system availability and real-time integrated monitoring of its data centers

“A wonderful tool empowering BSNL to monitor and improve the health of fixed line data center anytime, anywhere. I congratulate TCS and its team for the excellent innovation.”

Prabhash Singh
Chief General Manager, ITPC, BSNL

Bharat Sanchar Nigam Limited (BSNL), a leading Indian communication service provider, has one of the largest and most complex data centers supporting fixed line and broadband businesses in the country. While performance and high availability are top priorities for the BSNL data center team, the challenge is to maintain high system availability and a real-time integrated view of the data center.

An innovative solution was delivered by Tata Consultancy Services (TCS) through its data center monitoring and remote tracking framework. The solution enabled integrated visibility of the data center, helping BSNL to maintain 99.9 percent system availability.
About the Client
BSNL is the world’s seventh largest telecommunications company and provides a comprehensive range of telecom services. It has a pan-India footprint and is the fifth largest telecom operator with 12.8 percent market share. BSNL also has 67 percent market share in Asymmetric Digital Subscriber Line (ADSL) services. Currently, BSNL has around 43.73 million basic telephone capacity lines and 37,885 fixed exchanges. The company offers wide ranging and transparent tariff schemes to suit every customer.

Business Challenge
BSNL’s data centers are among the most dynamic and critical parts of its business operations. Every BSNL data center is equipped with 258 servers and 45 databases, each containing more than ten terabytes of data. However, steady growth in recent years has led to increased complexity and criticality of these centers.

As an acknowledged leader in providing infrastructure solutions to its customers, BSNL’s objective is to maintain 99.9 percent system availability. As an acknowledged leader in providing infrastructure solutions to its customers, TCS wanted to look at innovative ways of improving data center efficiencies. The challenges included:

- Building a monitoring framework with a 360 degree view on data center health and vital parameters of IT systems
- Using data from the monitoring system to analyze equipment operating trends and develop preventive maintenance programs
- Sending instant notification of a failure or an event to the system administrator
- Tracking real-time status of vital system parameters and critical business operations/processes 24x7 and making it available on the data center support team’s mobile

TCS’ Solution
The TCS team adopted a holistic approach that treated the data center as a single system. We kept in mind the complexity of the data center, the enormity of the operations and maintenance, the need for round-the-clock monitoring, and the requirement of maintaining synchronization between all system administrator health monitoring reports.

We delivered the following solutions.

Data Center Health Monitoring Portal: The solution monitors the health of multiple servers and databases simultaneously. It also:
- Enables real-time updates on data center status
- Checks all the vital parameters, key performance indicators (KPIs), and availability of the servers and databases in real-time
- Summarizes the overall health in any of three states: green (healthy), amber (minor alerts to be acted within 24 hours), or red (imminent failure unless immediate attention is taken)
- Measures nearly 30 distinct parameters and KPIs for each application, database, and operating system (OS) server. KPIs for databases include instance availability, temporary space, fragmentations, and blocking sessions among others. OS KPIs include glance values and file system health.

The tool can be tailored to collect any set of KPIs with customizable threshold limits.

SMS Tracker: Data from the Health Monitoring Portal is sent through SMS to the data center team. The team can send or receive a prompt notification of a failure or an event that may lead to a failure. This allows faster, effective, and proactive response to system problems. The tool also enables:
- Secured access, as only registered mobile numbers in the tool are authorized to send or receive SMS notifications
- Storage of alerts generated in the tool’s alert database along with the action taken for each alert, thus assuring root cause analysis for 100 percent of the alerts
- Alerts received by the data center team in mailboxes as well as on mobile phones
“TCS' innovative solution enables us to get a real time integrated view of our data center. This helps improved monitoring, availability of systems and customer satisfaction.”

Govind Kewlani
General Manager, ITPC, BSNL

Experience certainty

True certainty of success comes from working with a partner you trust to provide the insight, support and expertise that will propel your business forward. Experiencing certainty with TCS means you can count on results, partnership and leadership.

Results

The most compelling benefit this monitoring and remote tracking framework delivered was that the system availability at the data center was maintained at 99.9 percent as compared to an average of below 97 percent availability earlier.

For example, an alert is generated when there is a space crunch in the mediation system with call detail records (CDR). The data center team gets SMS alerts and can avoid delays in polling and rating of call detail records, minimizing impact on invoice generation and billing schedules, and improving the accuracy of billing.

Also, for around 30 work processes running on SAP CRM, members of the data center team receive SMS alerts on lowered performance, so that they can take immediate action to restore the degraded performance. Any delays on notification would usually result in poor application performance, lower productivity of customer service desk users, and poor service to customers.

By receiving immediate alerts of failures or events likely to result in failure, the data center team ensures timely and effective responses to system problems, reducing unscheduled outages. A total of 783 alerts were monitored across 30 KPIs in a span of three months.

Data from the monitoring system is used to analyze operating trends of systems and develop more effective preventive maintenance programs. The solution enabled the implementation of a continuous improvement framework, since the data collected by the system allows root cause analysis of all process exceptions.

The solution provided the BSNL data center team with a real-time integrated view that treats the data center as a single system. The team also gets access to a graphical summary of data center health.

SMS updates of revenue generating business operations and responses to system problems have ensured timely revenue realization to BSNL. The team can track the status of any critical job 24X7, on the go, and without internet access.
About TCS New Growth Markets Unit

The New Growth Markets unit (NGM India) focuses on large private enterprises, large business, and public sector units in India.

With over 12,000 associates, the NGM India unit provides end-to-end consulting, products, IT services, infrastructure services, engineering services, and Business Process Services (BPS) services across India.

TCS started with its first assignment to provide punched card services to its sister concern Tata Steel (then TISCO) and later bagged a project involving inter-branch reconciliation systems (IBRS) for the Central Bank of India. With over 45 years of pioneering excellence in India, the unit delivers the highest quality, best-engineered solutions based on the process-driven approach and practices that are aligned with strategic trends in the Indian industry.

Contact

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Tata Consultancy Services is an IT services, consulting and business solutions organization that delivers real results to global business, ensuring a level of certainty no other firm can match.

TCS offers a consulting-led, integrated portfolio of IT and IT-enabled infrastructure, engineering and assurance services. This is delivered through its unique Global Network Delivery Model™, recognized as the benchmark of excellence in software development. A part of the Tata Group, India's largest industrial conglomerate, TCS has a global footprint and is listed on the National Stock Exchange and Bombay Stock Exchange in India.

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