Customer Service Program

Whitepaper

Introduction

This white paper discusses Netezza's Customer Service strategies and philosophy.

The NPS System's Parallel Architecture

Netezza designed the Netezza Performance Server® system as a data warehouse appliance optimized for BI on terabytes of data. The NPS system architecture consists of parallel processors with storage modules, which are intra-connected through a high-speed network. This architecture allows for massively parallel processing.

Redundancy

Each of the NPS system's processing and storage modules includes a data mirror. The system thus provides a high level of system availability and data integrity by utilizing data on the mirrors as necessary:

• Netezza software continuously monitors the status of each processing/storage module

• If the system detects an error, or a processing/storage module stops responding, it deactivates the failed module

• The system regenerates data onto a hot spare module from mirrored data, a process know as failover

• If a hot spare module is not available or fails, the system continues processing at a reduced performance by directly using the mirrored data

Note that, depending upon the system model, there are between four and sixteen hot spare modules available.

Components

The NPS system consists of commodity and proprietary components.

Commodity components include:

• Network switches

• Host computers

• Power distribution units

• Keyboard/monitor modules

Proprietary components include processing/storage modules that are packaged in arrays of 14 components.

Remote Service Model

Customer staff can replace processing/storage modules, which are hot-pluggable. With phone support or training from Netezza, customer staff can replace other components such as the power supplies and fans within a processing/storage module array.

The combination of commodity components, data mirroring and failover to hot spares presents an ideal opportunity for a remote service model.

CRUs and FRUs

System components are either Customer Replaceable Units (CRUs) or Field Replaceable Units (FRUs):

• CRUs are items customer staff can usually replace themselves without needing to consult Netezza

• FRUs require consultation or training to replace

Customers who maintain a dedicated IS staff can replace any FRU with minimal telephone guidance from Netezza.

Tiered Support Strategy

Netezza offers a tiered support strategy that includes a headquarters-centric support staff, installation teams and outsourced on-site remedial hardware services.

Opening a Service Request

Depending upon the urgency of the situation, customers can open requests in one of two ways:

• Customers open critical requests by telephone

• Customers open non-critical requests through a service request ticket, which they open using Netezza's web-based application

Netezza's web-based application allows customers to open, modify and view their service request tickets. Customers should open service request tickets for all critical and non-critical service requests, including those critical requests that are opened by phone. Entering requests through the web-based application assures that there is a record of the request, and provides a mechanism to attach and communicate information related to the service request.

Configuring Event Rules

Customers can configure "Event Rules" to generate email on the occurrence of specified events. Through Event Rules, predetermined hardware and software errors can issue an email to Netezza Customer Service. Customers should still open a service request ticket to ensure tracking integrity and the implementation of Netezza's internal escalation processes.

Once a Service Request is Received

Once Netezza receives a service request, a Service Engineer remotely connects to the customer's system through the service modem. The engineer analyzes the system log files, core dumps, execution plans and any Linux system error messages.

If the Netezza Service Engineer cannot connect remotely, the engineer asks the customer to collect the necessary logs and files to attach to the service request ticket. These logs and files could include selected core dumps, Netezza error logs, execution plans and Linux system error messages.

Note that disabling remote connectivity can increase the time it takes Netezza to resolve a problem.

Netezza's follows set priorities in resolving issues:

1. Get the system up and running
2. Gather information for further analysis
3. Determine if the problem is related to hardware or software
4. Decide upon the most expedient resolution

Netezza's Service Request system is not designed to communicate, track or escalate functionality or feature requests. Customers make requests for functionality and features through Netezza's technical account team.

Importance of Connecting Remotely

Remote connectivity into the system plays an important roll in the overall support of the system. Under the Netezza Service Agreement, Netezza supplies a service modem with each system. Netezza recommends that the service modem be connected to a dedicated phone line at all times. This direct connection allows Netezza to access the system in the event of a problem, minimizing any downtime.

If security reasons do not allow the modem to be on a dedicated connection, the customer can connect the modem temporarily when a problem occurs. Under special arrangement, a VPN connection can replace the modem.

Servicing On-Site

Netezza has a worldwide service agreement with the Hewlett-Packard (HP) Company to provide on-site hardware service. This service agreement is referred to as "Smart Hands". In all cases, Netezza retains ownership of the service request and is responsible for resolving all hardware and software service issues. Note that the service agreement does not extend to third-party software the customer might install on a system.

When the customer needs service:

• The HP engineer arrives on-site and contacts a Netezza engineer by phone

• The Netezza engineer guides the HP engineer through any removal and replacement procedures

Note that Netezza engineers identify any failed hardware module before the HP engineer arrives on site. The one exception to remote diagnosis concerns problems that may arise with the HP host system itself. If there is a problem with the host system, HP is responsible for providing all parts to repair it. Netezza Corp. provides all Netezza-proprietary parts, most of which are stocked at the customer site in the form of spare parts kits.

Netezza's agreement with HP upgrades HP's host factory warranty to a 7x24 warranty, with a four-hour response time. Netezza pays an advance retainer to HP for this same level of response for Netezza-proprietary components. Hourly rates apply when HP engineers are on-site; Netezza assumes these costs as part of the service contract with its customers.

CRUs and FRUs: Replacement Procedure

Netezza follows this procedure if hardware service is necessary:

1. If the issue is critical and the failed module is a CRU, Netezza engineers offer to guide the customer through the removal and replacement process using parts from an on-site spare parts kit
2. If the failed component is not a CRU, Netezza opens a Service Request with HP
3. When the HP engineer is on-site, Netezza directs correction efforts by phone until the system is operational

Note that Netezza replaces, free of charge, any parts covered under the service agreement.

Correcting Software Problems

Netezza follows this procedure if the problem is related to software:

1. A Netezza engineer attempts to identify an avoidance or "work-around" for the problem until a software patch becomes available
2. If the problem is a new software bug, the Netezza engineer enters the bug into Netezza's internal bug tracking system. The problem escalates to software engineering through the bug tracking system.
3. Development engineering develops a fix plan based on criticality and complexity
4. Development engineering assigns the bug for fixing. The impact and consequence of the bug determines priority.
5. A Netezza engineer communicates the fix schedule and release number to the customer
6. Status updates for critical and serious bugs are communicated through the service request ticket

Note that the contents of the bug tracking system are Netezza-confidential. Customers cannot access the bug tracking system as it could contain references to other customers and their applications.

Registering the Linux Operating System Software

Customers must register their operating system software. Patches and new releases are available directly from the Red Hat network (RHN) at no charge. Netezza recommends that customers consult with Netezza Customer Support prior to loading patches or upgrading releases.

Installing the System

Netezza Customer Service and Systems Engineers perform an on-site pre-installation survey. The purpose of the survey is to ensure that power, cooling and unloading facilities are available and adequate. The Netezza engineers also gather additional information such as:

• SMTP and NTP hostnames

• Type of network

• Network Interface Cards (NICs) and ODBC clients in use

In general, Netezza engineers follow this sequence of tasks:

1. Install the system at the customer site

2. Load the software

3. Test the system

4. Connect the system to the customer's network

System installation takes one to two days, depending upon the system model.

Netezza engineers configure electronic mail and nzevents to ensure the customer system can send messages to callhome@netezza.com. They also set up and connect the service modem to an analog line, and check remote access.

Netezza engineers provide the customer with an overview of the CRUs, and train the customer on their removal and replacement. Spare parts kit content is reviewed and the kit secured for safekeeping.

Netezza engineers demonstrate how to use the web client to contact Customer Service and open service request tickets.

Support Offerings

The following table lists the levels of Netezza support offerings.

Figure 1

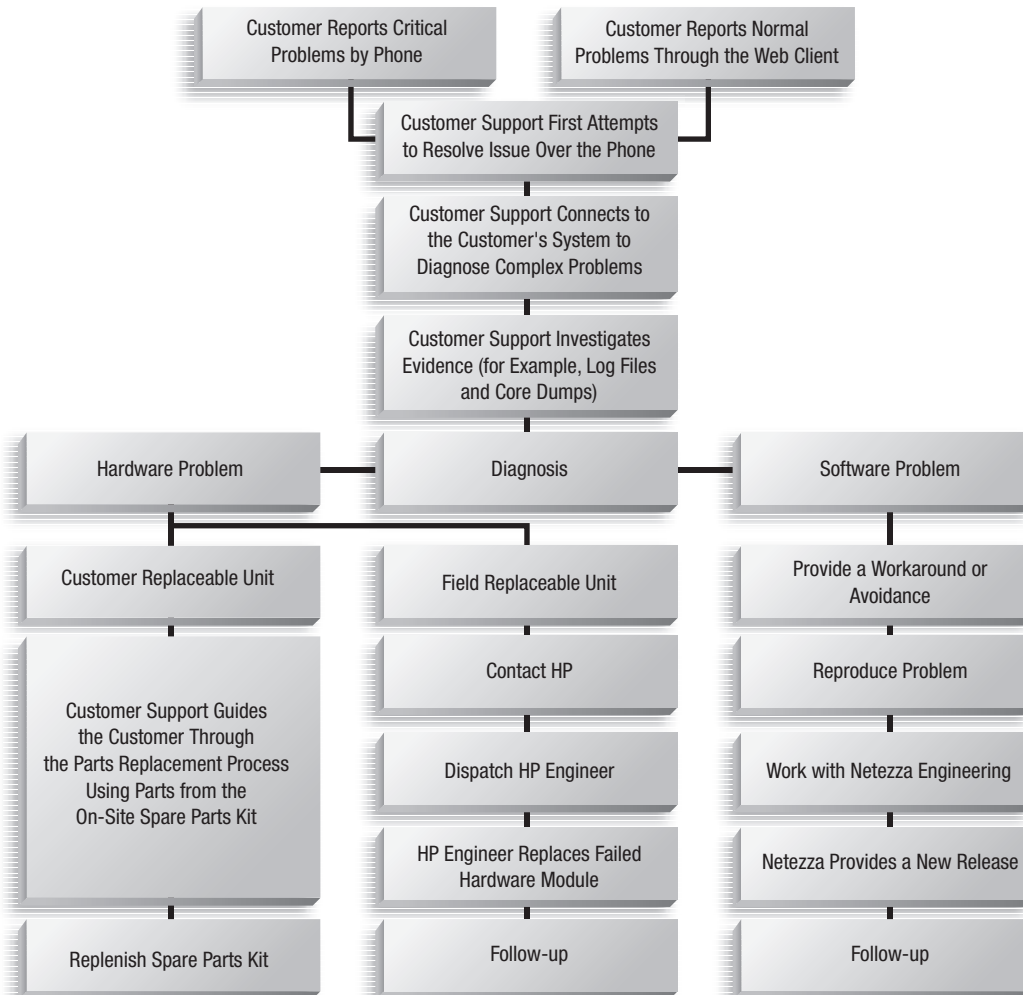| Contract Features	Business Critical	Standard	Service Partner
Knowledge Base	Yes	Yes	Yes
FAQ	Yes	Yes	Yes
SW Updates	Yes	Yes	Yes
Patch Downloads	Yes	Yes	Yes
Maintenance Training	1 Day	1 Day	2 Days
On-site HW Support	7x24, Response	Next Business Day	Time & Material
Technical Support	7x24, Critical Support	9 to 5 EST, M/F	9 to 5 EST, M/F
Emergency Parts Shipping	Advance Exchange Overnight	Advance Exchange Next Business Day	Exchange

Spare Parts Kits

The following table lists a typical NPS 10400 spare parts kit.

Description	Part Number	Quantity
SFI (Snippit Fabric Interface Card)	20287-1	1
SPU (Snippit Processing Unit)	20286-1	3
SPA (Snippit Processing Array Power Supply)	20288-1	2
Network Card	20260	1

Typical Call Flow

Customer Reports Critical Problems by Phone

Customer Reports Normal Problems Through the Web Client

Customer Support First Attempts to Resolve Issue Over the Phone

Customer Support Connects to the Customer's System to Diagnose Complex Problems

Customer Support Investigates Evidence (for Example, Log Files and Core Dumps)

Hardware Problem — Diagnosis — Software Problem

Customer Replaceable Unit

Field Replaceable Unit

Provide a Workaround or Avoidance

Customer Support Guides the Customer Through the Parts Replacement Process Using Parts from the On-Site Spare Parts Kit

Contact HP

Reproduce Problem

Dispatch HP Engineer

Work with Netezza Engineering

HP Engineer Replaces Failed Hardware Module

Netezza Provides a New Release

Replenish Spare Parts Kit

Follow-up

Follow-up

About Netezza

Netezza, the global data warehouse appliance market leader, enables enterprises to make all of their data actionable - quickly, simply and affordably. The Netezza Performance Server family of products delivers break-through performance, unmatched ease of deployment and operation, and innovative flexibility and scalability at a fraction of the cost of traditional data warehouse solutions. By architecturally integrating database, server and storage within a single appliance, the NPS system delivers 10 to 100 times the performance at half the cost of existing systems. Based in Framingham, Mass., Netezza has offices in Washington, DC, the United Kingdom and Asia Pacific. The Company is backed by leading venture capital firms, including Matrix Partners, Charles River Ventures, Battery Ventures, Orange, Sequoia Capital and Meritech Capital Partners. **For more information about Netezza, please visit www.netezza.com.**

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