

PG1000
PG2000

QueryMaster™

Database Load Management

For
PostgreSQL



PG1000 Single Node

- Single node server
- Dual Pentium III architecture
- 1U high density form factor
- Redundant power
- Hot-swap fans
- 1GB cache
- Dual 100BaseT connections
- N+1 hard drive con-

TierFleet is introducing a new level of fault tolerance, scalability and ease of management to the Web. One of the most prevalent applications used in websites and internet data sharing systems is a multi-tiered information delivery system. Websites use databases to store and catalog the information that they are delivering, as well as to collect data from their visitors. Most of these sites depend upon the simplest of multi-tier architecture. They have a set of web servers that access data from a central database. This database is predominantly a SQL type server. The web servers send queries to the database with no form of traffic management. These sites have a very difficult time scaling their database backend without shutting down their site to upgrade the server. This is a difficult and costly method of increasing performance. In addition, as the site grows they must invest increasing capital in newer, larger database hardware and software. This type of "fork-lift" upgrade is not very efficient and leads to a capacity planning problem. Most companies will over-invest in their database backend, so that if their business takes off, their servers will be able to scale to meet demand. Wouldn't it be better to buy capacity as you need it? Add a new server to the backend database when you see demand increasing, while still using the hardware that you originally bought? Query Servers allow IT managers build scalable, flexible and robust backend databases without adding the additional cost or complexity that an enterprise database would impose.



PG2000 Dual Node

- Dual node server
- Dual Pentium III architecture
- 2U for both nodes
- Automatic fail-over for high availability
- Health monitoring
- Traffic balancing and load shaping
- Dynamic database scalability
- Online expansion of cluster

Best Fit Solutions

TierFleet offers two solutions to meet the demands of different environments.

Initial support for PostgreSQL databases with the PG series Query Servers.

PG1000 is designed for smaller websites that require the most cost effective and flexible solution on the market. Since the PG1000 includes only one Query serving node, there will always remain a single point of system failure at the server itself. To ensure uptime the PG1000 comes equipped with redundant power supplies, fans, network interfaces and disk storage systems.

Its small form factor allows for simple deployment in high density web environments.

This is the choice for start-ups that need to increase the robustness of their web services at a low entry cost.

PG2000 adds a whole new level of availability. By adding a second standby node to your multi-tier web service you will eliminate any single point of failure.

The PG2000 includes management tools and monitoring software so that in the event of a critical system error in the main Query engine, the standby will take action to complete all incoming requests to the database backend.

With this type of fault tolerance, you are guaranteed more uptime and better performance from your system.

In addition, the PG2000 includes load modeling algorithms to shape the way traffic is served from your database backend.

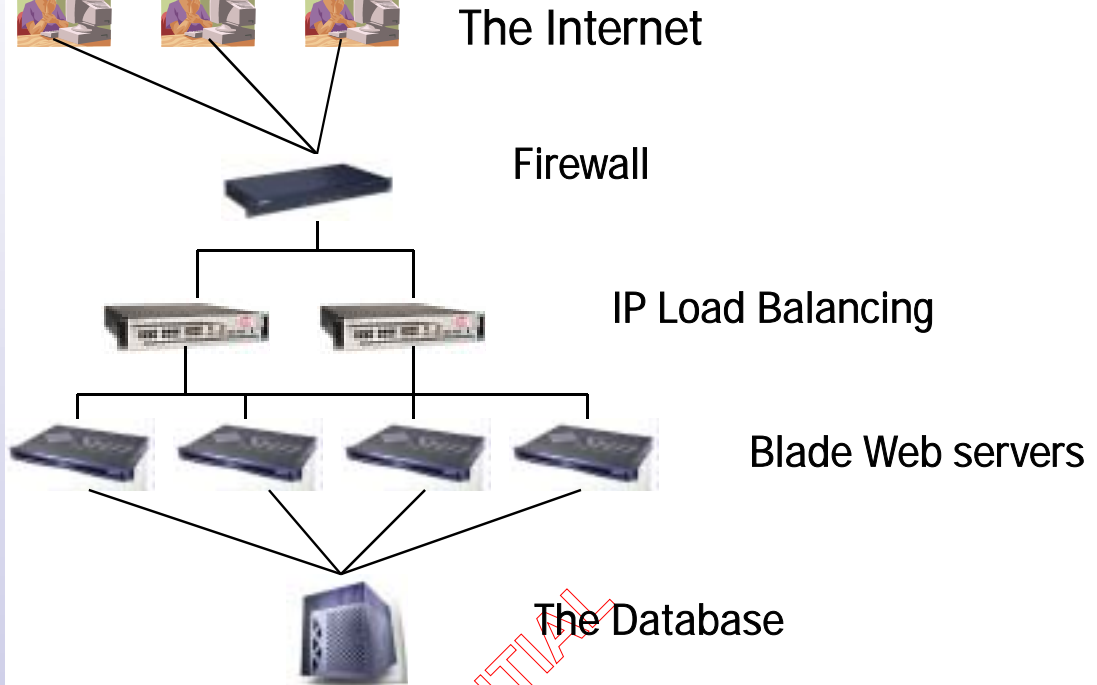
Multi-Tier Query Serving

Today's Multi-Tier Web Applications

- Unable to scale performance
- Most systems are designed with a single database node, thus creating a single point of failure
- Database is difficult to increase in size
- Requires expensive database hardware to perform well
- No intelligence between Web Servers and Database
- No way to manage changes in traffic patterns
- Difficult to recover from DB server failure
- Software or content failure can bring down with web application without warning
- No external monitoring of network links between DB and web.



Example of Multi-Tier Web Applications without Query Servers



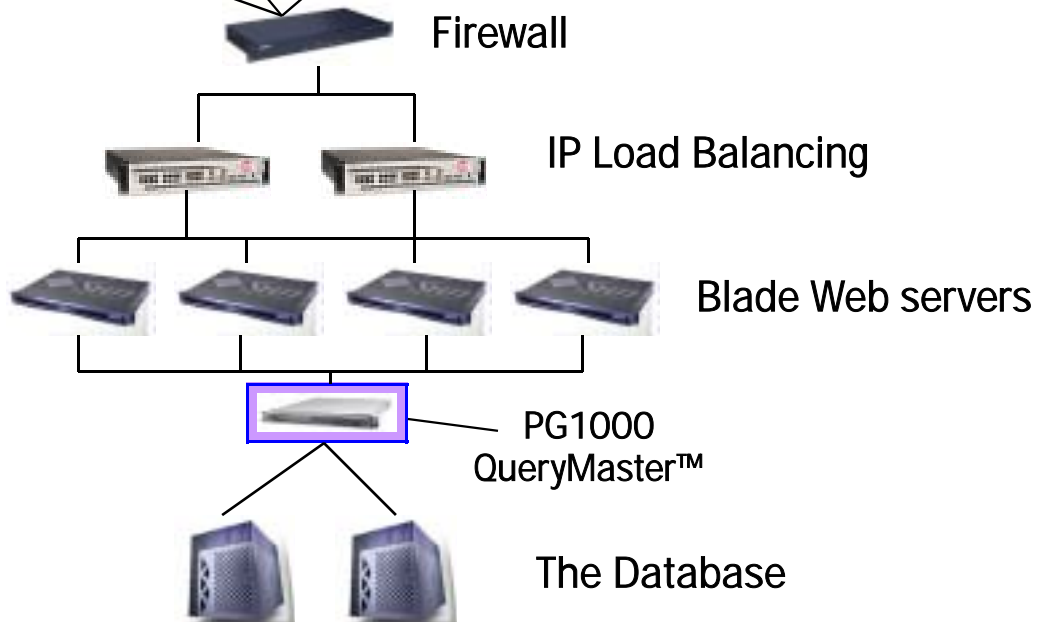
The Future of Web Applications is Load Balanced Query Serving

- Mirrored copies of a single database instance coexist in real time
- PG1000 manages requests
- Continuous Health Monitoring of DB backend
- Allows for online upgrades of DB hardware
- Highly available, redundant DB servers increase uptime for web applications
- Improved performance by serving queries to least busy servers
- Predictable optimized traffic management
- Easy installation, no changes required on DB backend or web servers tier
- Compatible with all SQL-based RDBMS, ORDBMS and XML standards (Note: PG1000 and PG2000 are certified with PostgreSQL only)
- Web-based GUI for easy management
- Statistics and patented Query balancing algorithms to help tune web system performance
- Allows for extensible database backend

The Internet



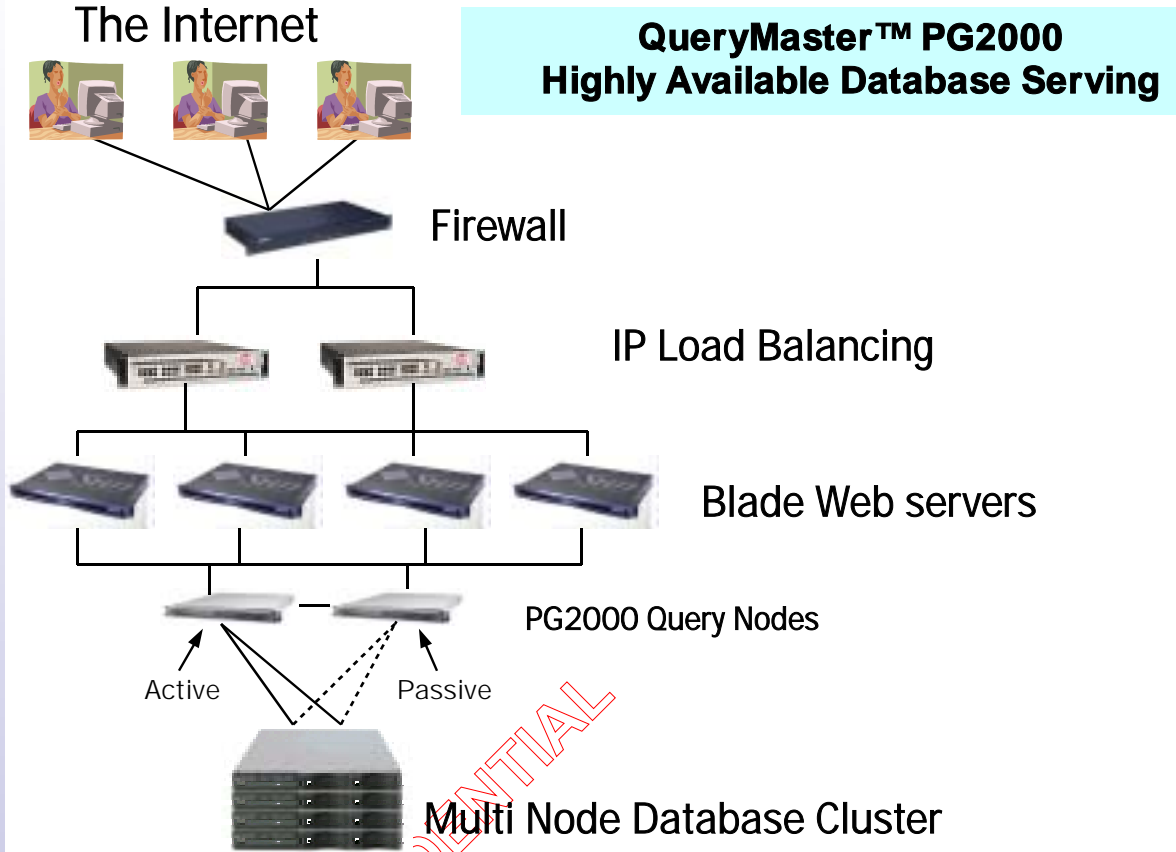
Third Generation Multi-Tier Web Serving with QueryMaster™ PG1000



Multi-Tier Query Serving

High Availability PG2000 Design

- Non-stop database design
- Active-passive fail-over
- Traffic shaping algorithms
- High-performance Dual Pentium architecture
- Hot-swap fans, power and drives
- Dual 10/100 interface
- Support for failsafe networks
- Dynamic load balance and automated load balancing
- Supports standard SQL query language
- Easily incorporated into existing database environments
- Build low-cost, highly available database networks
- Dynamic online database cluster expansion
- Repair databases with little or no downtime



Add database servers on the fly

With PG2000 your DBA can simply add another piece of database hardware to your system and tell your QueryMaster™ to migrate data from your current cluster to the new hardware. QueryMaster™ will intelligently choose the database node with the least load and migrate data from that server to the new hardware. All of this can be done online. When there is no active transaction in progress, your QueryMaster™ will bring up the new node.

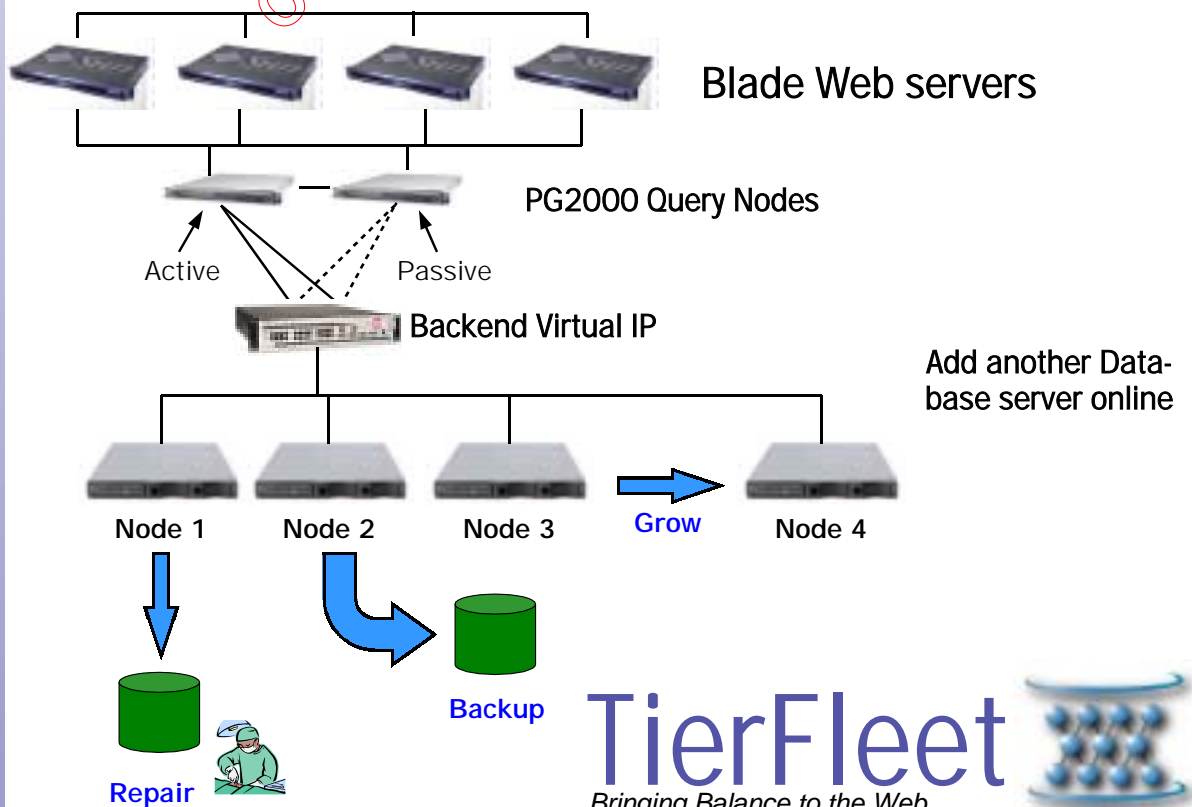
Repair minor database problems without shutting down

The QueryMaster™ has an intelligent management and administration system that lets you "break off" a node from a misbehaving database. Your administrator can perform detailed analysis and repairs on the system without effecting production. In addition, once repaired, nodes can be migrated back into production by playing write logs back into the repaired database.

Online backups of active databases

The QueryMaster™ is also able to pull nodes out of production gracefully, so that the administrator can perform a backup of the full database without effecting your production environment. Or the database can be set to read-only, and backed up from any node while still allowing for access.

Example of Online Expansion, Repair and Backup with PG2000



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QueryMaster™

Hardware Specifications

Server Platform Specifications

Processor/Cache

Processors Supported Chipset

Support for up to two Intel®Pentium®III processors
ServerWorks® ServerSet™ IIIIE chipset consists of the ServerWorks® CNB30LE North Bridge and the ServerWorks® OSB4 South Bridge

System Memory

Memory Capacity

Four 25°-angle DIMM sockets for 64MB to 4 GB SDRAM

Memory Type

PC/133 133 MHz or PC/100 100 MHz registered SDRAM, 72-bit ECC, 168-pin gold-plated DIMMs 64 MB, 128 MB, 256 MB, 512 MB and 1 GB 3.3V only

DIMM Sizes

Memory Voltage

Error Detection

Corrects single-bit errors, detects double-bit errors

Expansion Slots

Description

One full-length slot and one low-profile slot (64-bit/66-MHz) on passive riser card

Integrated Intel® Server Ethernet Controller

Controller

Two stacked Intel®PRO/100 Server Ethernet Controllers (Intel®82559)
Supports 10BASE-T and 100BASE-T, RJ45 output

Integrated SCSI Controller

Adaptec® AIC-7899 PCI Bus Master Dual-channel Ultra160/m SCSI Host Adapter Chip with both internal and external U160 ports
Two stacked USB connectors

Front Panel

LED Indicators

Power, Status, IDE Activity, two LAN Link/Activity, two LAN

Switches

100Mbps and two SCSI activity/fault
Power, Sleep, Reset and NMI (Non-maskable Interrupt)

Server Management Instrumentation

Failure Detection

Voltage variation, thermal, operating system watchdog timer, fan failure, processor status, and ECC memory

Remote Power Control

Remote Power Off

Power-up using WOR and WOL
Through GUI management console and Reboot-on-Break

Event Logging

Non-volatile storage to prevent loss of logs in event of system or power failure

Security

Security video blanking and password protection

Environment

Ambient Temperature

Operating

+10°C to +35°C to 5,000 ft., de-rated 1°C/1000 to 10,000 ft., maximum rate of change of 10°C per hour
-40°C to +70°C ambient temperature

Non-operating

Relative Humidity

Non-operating

95%, non-condensing @ +30°C

Acoustic Noise

<45 dBA @ +23°C±2°C

Safety Regulations

USA/Canada

UL1950, 3rd Edition/CSA 22.2, No. 950M93, 3rd Edition

Europe

CE Mark Low-Voltage Directive, 73/23/EECTUV/GS to EN60950 2nd Edition with Amendments, A1 = A2 + A3 + A4

International

CB Certificate and Report to IEC 60950, 3rd Edition including EMKO-TSE (74-SEC) 207/94 and other national deviations

EMI/RFI

USA

FCC 47 CFR Parts 2 and 15, Verified Class A Limit

Canada

IC ICES-003 Class A Limit

Europe

EMC Directive, 89/336/EEC
EN55022, Class A Limit, Radiated and Conducted Emissions

Australia/New Zealand

Japan

EN55024, Immunity Standard for Information Technology Equipment

Taiwan

Korea

Russia

International

System

Form Factor

Rack-mount

1U, rack-mountable
Front and mid-mount brackets or sliding rails (optional)

Height

Width

Depth

Weight

Fans

1.70" (43.18mm)
16.75" (425.45mm)
24.00" (558.80mm) (22.50" without bezel)
29 lbs. (maximum configuration)

Drives

Hard Drive Bay

Nine 40mm variable-speed fans, all with tachometer output
One standard 3.5" slim-line diskette drive; optional slim-line CD-ROM drive
Two front removable, hot-swappable LVD/SE SCA 80-pin SCSI hard drives

PFC AC Power Supply

AC Voltage & Frequency

90-135, 180-265 VAC (47/63 Hz)

DC Power Supply

200W

+5VDC

22A maximum

+5VDC Standby

1.0A maximum

+12VDC

3.5A maximum

+3.3VDC

13.0A maximum

-12VDC

0.25A maximum

PFC -48V DC Power Supply Accessory

DC Voltage

-36.0Vmin to -72.0Vmax input parameters

DC Power Supply

200W

+5VDC

22A maximum

+5VDC Standby

1.0A maximum

+12VDC

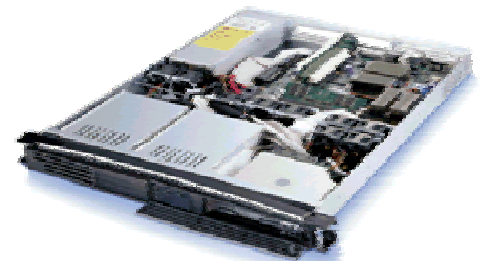
3.5A maximum

+3.3VDC

13.0A maximum

-12VDC

0.25A maximum



TierFleet
Bringing Balance to the Web

