



PowerGrid Enterprise Solutions

PowerDNN

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Scope of Services Offered

PowerGrid™

PowerGrid Private Clouds are an advanced web farm and private cloud configuration for DotNetNuke hosting designed to handle the largest and most load-intensive DotNetNuke websites in the world. PowerGrid Private Clouds provide unrivaled performance and reliability to meet the enterprise DotNetNuke hosting needs of any corporation's IT or marketing department.

Today enterprise organizations are utilizing web applications in ways that require seamless scalability, built-in redundancy and a high standard of security. Cloud technology has allowed web applications to be scalable, redundant and distributed but lack the security needed to meet the needs of the enterprise.

PowerGrid is a private cloud configuration built specifically to handle the needs of DotNetNuke applications and meet performance and security requirements of the enterprise. Our PowerGrid private cloud configurations utilize our proprietary PowerCache™ technology to enable DotNetNuke to perform at high levels in large scale multi-server environments.

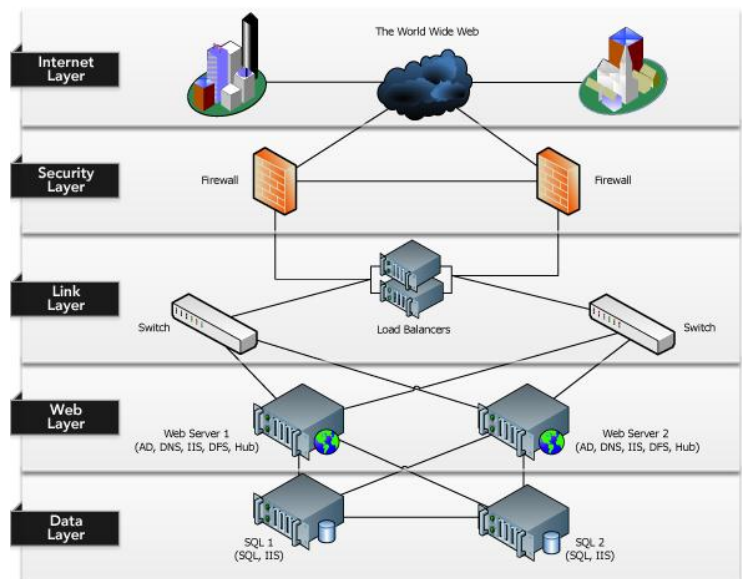
Infrastructure

We guaranty that data center HVAC and power will be functioning 100% of the time in a given month, excluding scheduled maintenance. Power includes UPSs, PDUs and cabling, but does not include the power supplies on your servers. Infrastructure downtime exists when a particular server is shut down due to power or heat problems.

Guaranty: PowerDNN will credit your account 5% of the monthly fee for each 30 minutes of infrastructure downtime, up to 100% of your monthly fee for the affected server(s).

Hardware

We guaranty the functioning of all server hardware components and will replace any failed component at no cost. "Hardware" means the processor(s), RAM, hard disk(s), motherboard, NIC card and other related hardware included with the server. Hardware replacement will begin once we identify the cause of the problem. Hardware replacement is guaranteed to be complete within one hour of problem identification. Guaranty: We will credit your account 5% of the monthly fee per additional hour of downtime, up to 100% of your monthly fee for the affected server(s).



How Does it Work?

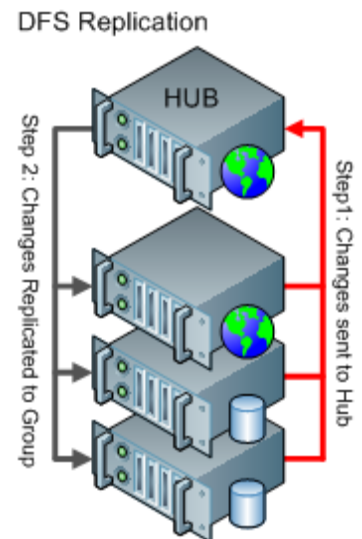
There are several key pieces that are required to ensure that the PowerGrid is built and functioning properly: DFS Replication, MSSQL Mirroring (on 2x2 or larger PowerGrid), Load balancing, PowerCache, Active Directory, and the IIS configuration.

DFS (Distributed File System) Replication

A PowerGrid utilizes Microsoft's Distributed File System Replication (DFS) to replicate the site files, as well as shared configuration files, utility programs, and other files or folders placed into the shared replication folder structure, across all the servers in the PowerGrid environment.

The DFS typology type that is configured in a PowerGrid environment is Hub and Spoke where it has a single master hub server. All other servers send any changes made on them to this hub which then replicates these out to the rest of the servers in the group. In a standard PowerGrid environment, the Web1 server is set up to perform the duties of the hub, however any server can perform this function and several environments have been set up to have a server dedicated solely to this task.

The image to the above-right shows a standard 4x4 PowerGrid configuration. In this image, the red line indicates the traffic generated by the "spokes" when changes are made. The dark grey line shows the traffic generated by the "hub" after the changes have been received out to the other servers in the group. Since a PowerGrid replication group is set up for read-write for all DFS members, changes can be made on any which will eventually replicate to every server. Ideally the fastest way to replicate a large amount of changes to the entire group would be to limit making changes solely on the hub server (Web1 in the image example) since there would be no incoming replication that would need to be completed.



What is PowerCache?

Large scale DotNetNuke applications have unique needs that need specialized attention when compared to small DotNetNuke applications. The most challenging of these problems involves handling distributed caching. PowerCache eliminates the synchronization problems that are normally encountered when using DotNetNuke in a load-balanced environment by ensuring that every server's cache is synchronized with every other server in the DotNetNuke web farm cluster. Apart from managing a distributed caching environment, PowerCache also provides a high-reliability, fault-tolerant configuration as well. New servers can be hot-added and hot-removed from a PowerCache infrastructure.

Enterprise Datacenters

We value high quality datacenter partners to provide the network and facilities uptime and reliability that are paramount our infrastructure. We utilize three datacenters located throughout the Midwest United States located in Nebraska, South Dakota, and Missouri. Our facilities and locations are free from the natural disasters such as floods, hurricanes, earth quakes, and power shortages that plague other datacenters throughout the world.

Data Center Comparison Chart

	TIER I	TIER II	TIER III	PowerDNN Data Centers TIER IV
Number of delivery paths	Only 1	Only 1	1 active 1 passive	2 active
Redundant components	N	N+1	N+1	2(N+1) or S+S
Support space to raised floor ratio	20%	30%	80-90%	100%
Initial watts/ft ²	20-30	40-50	40-60	50-80
Ultimate watts/ft ²	20-30	40-50	100-150	150+
Raised floor height	12"	18"	30-36"	30-36"
Floor loading pounds/ft ²	85	100	150	150+
Utility voltage	208, 480	208, 480	12-15kV	12-15kV
Construction \$/ft ² raised floor	\$450	\$600	\$900	\$1,100+
Maximum yearly downtime	28.8 hrs	22.0 Hrr	1.6 hrs	26 min

Highlights

- Four local SONET fibers provide redundant carrier/neutral fiber access
- Carrier services: OC-3, OC-12, OC-48 and above
- Network monitoring throughout all critical infrastructure components
- Redundant Tier one internet bandwidth managed by Route Science
- Fully redundant Carrier class Cisco core routing and switching

Certifications List

On the internet, anyone can claim to be the best; however, few companies really deliver. We feel that being certified in industry specific areas is important. We realize that certain institutions have prerequisites that need to be met in order to do business with us, and we are always willing to work with you. We do our best to be in compliance with all regulations, and certified in all relevant areas. That way you have not only great service and support, you have peace of mind knowing that we have all aspects of your hosting package covered. This includes the knowledge and expertise to protect your information, and work with the best of the best in the DNN Community. Below you can see the list of certifications.

- DotNetNuke Gold Partner Certification
- PCI Certified Datacenter
- SAS70 Certified Datacenter
- NIST Certified Datacenter
- HIPAA Certified Datacenter
- LEED Registered Datacenter
- TRUSTe Certified Datacenter