REFERENCE ARCHITECTURE

ENTERPRISE PRIVATE CLOUD
ENTERPRISE PRIVATE CLOUD HOSTING

Whether you’re looking to outsource your operations infrastructure, or you’ve outgrown the inherent limitations of hosting in the public cloud, Network Redux offers the perfect solution with our managed private cloud.

The Enterprise Private Cloud (E-PC) described in this whitepaper is a reference design for how we build scalable, dedicated hosting environments premised on a high-availability, N+1 architecture to ensure the highest levels of reliability, performance and security.

Typically, our private clouds are built on bare-metal servers using service-level clustering and appropriate caching strategies, although we also employ virtualization when needed, or integrate our Enterprise Virtual Server (E-VS) product as a hybrid solution when it makes sense for your application.

The result is an extremely cost-effective way to expand your infrastructure with just the right capacity and configuration for your needs at a predictable and affordable price. As your needs change over time and your business grows, we can scale the environment to grow with you.

WHAT IS PRIVATE CLOUD HOSTING?

Cloud computing terminology is murky at best, so let’s start by defining what we mean by private cloud hosting at Network Redux. We think of it as a dedicated, secure computing environment which sits behind a managed firewall for the benefit of a single customer.

Essentially, it functions as an extension of (or replacement for) your on-premise data center, with a team of engineers who are constantly monitoring and maintaining this operations infrastructure on your behalf without any of the typical resource sharing and co-tenancy issues that you might experience with public cloud hosting.

THE NETWORK REDUX APPROACH

We take a consistent approach to every private build, but tailor the design to each customer’s unique requirements for storage capacity, disk I/O performance, remote access, security, clustering, backups, anticipated growth needs, and numerous other considerations.

We use only commercial-grade hardware coupled with leading open source software to architect your private cloud build, and we document and support every detail so you can stay focused on your code and deploy processes. We take care of monitoring, security updates, patch management, hardware failures, firmware updates, performance tuning, and pretty much anything else that might be needed to keep your environment working properly and performing at its best.

Our Enterprise Private Cloud solution benefits from being in a secure Tier 3 data center with fully-redundant power and cooling, and access to dozens of carrier cross-connects. Dual bonded 10Gbps links from each physical server into our layer-2 backbone deliver sub-millisecond latency – even between clusters in different rows. We specifically do not route on our switching layers to avoid layer-3 overhead, which is a unique design in our industry.

Best of all, Network Redux takes complete ownership of the end-to-end solution — from the upstream carrier connectivity, to the hardware and vendor relationships, to the data center and infrastructure management. We take care of everything!

“Network Redux has a truly exceptional team of engineers. They are easy to work with, and they function as an extension of my internal team.”

Serge Kreiker, Co-Founder
Kapitall Holdings LLC

1. No upfront capital outlay. Simply budget for a reasonable, recurring monthly operating expense.

2. Scalable platform. We can easily add additional memory, storage or CPU capacity when you need it.

3. Reliability. We’re able to offer a 99.99%+ uptime guarantee with multiple layers of redundancy.

4. Flexibility. Build an optimized environment for your application without the typical constraints of public cloud building blocks and shared resource degradation.

5. Increased security. We use managed firewalls to fence your environment and secure your data.

6. Access to experts. Our engineers are available to help you tune and optimize your application.

7. Peace of mind. You can focus on developing your product while our engineers monitor and maintain the hosting platform for you.
Data Center Features

**Private Cloud Environment**

- **Dedicated Firewalls**
  2 Juniper SRX240 firewalls to secure and manage your private cloud environment.

- **Bare-metal Servers**
  Commercial-grade equipment with redundant architecture and 4-hour hardware replacement SLA.

- **Clustering & RAID**
  We employ service-level clustering using Red Hat Clustering Suite and fast local disk in a RAID 10 configuration with DRBD block-level networked mirroring to maintain data consistency across multiple physical servers.

- **Private Network**
  Your servers run on a private network to deliver the most performance and security.

- **Custom Configuration**
  It's your server, and we'll build and optimize it to your unique specifications.

- **Backups**
  We provide protection for your database and files at no additional cost. We offer CDP and rsync with 30-day retention.

**Physical Security & Compliance**
Keycard and biometric locking mechanisms with video surveillance. Our data center is regularly audited for SOC type II compliance.

**Carrier Diversity & Bandwidth**
Our facility offers a robust carrier-neutral meet-me room and optimized links with up to 10Gbps through 11 top-tier carriers.

**Content Delivery Network (CDN)**
We partner with leading CDN providers to serve up your content faster and accelerate your application.

**Infrastructure Resiliency**
Our data center infrastructure is designed for concurrent maintainability of generator, UPS and cooling modules for maximum uptime & reliability.

**High Power Density & Energy Efficiency**
Modular UPS units and high-efficiency cooling enables power configurations up to 12kW per rack with an energy-efficient design.
THE REDUX EXPERIENCE

One thing that truly sets Network Redux apart, is our dedicated team of engineers who are constantly monitoring your servers to assure the highest reliability, performance and security.

We strive to deliver what we call the “Redux Experience” by taking a proactive approach in everything we do, and delivering exceptional communication to our clients. Our team is available around-the-clock from our 24/7 network operations center, and we’re happy to tailor our style to the way your team works.

As a customer, you have unfettered access to our software engineers, data scientists, and system architects who can assist your team with troubleshooting issues and optimizing your application. We are able to trace issues and identify bottlenecks using tools such as New Relic, or perform a database schema/query analysis to provide personalized recommendations.

We proactively monitor system resources on your devices (CPU, Disk, Memory, Disk I/O) and set threshold alerts which are monitored by our network operations staff 24/7/365.

If for instance you were to reach 90% disk space, our team would immediately notify you of this event by opening a support ticket. If we deem the matter critical, we may take steps to alleviate the problem while we wait for you to respond.

Our E-VS and private cloud hosting products are affordably and competitively priced, and we have a long list of established clients who would be happy to share their Redux Experience with you.

MIGRATION PROCESS

Client kick-off. Our technical PM will introduce the Redux team and explain how we’ll communicate and work together.

Requirements gathering. We’ll discuss your business goals, performance needs, virtualization options, scaling concerns, and security requirements.

Solution design. We’ll architect a hosting solution which meets your application, database, network, and security requirements.

Hardware procurement. Network Redux orders your equipment and provisions space for your hardware in our data center facility.

Build and burn-in. We set up the firewalls and servers, and configure clustering and backups for your private cloud installation.

Configure environment. We configure database and other services in your new private cloud environment to match your current hosting environment or specs.

Deploy your code. You deploy your code on the new Network Redux platform. Our engineers work with your operations team to ensure all required libraries, packages and supporting software are installed.

Functional and load testing. You ensure that your application functions properly and performs as expected.

Performance tuning. We look at database optimization, caching, and other strategies to further improve overall performance.

Configure monitoring. We setup monitoring and alerts for our 24X7 NOC team.

DNS migration and cutover. We perform a final database synch, lower the TTL, and cut the DNS over to your new private cloud.