WHITE PAPER

CRION

Protected uptime for connected businesses

Viatel

Orion is a unique and innovative autofailover. By delivering effective protection from the detrimental impacts of downtime, Orion enables businesses to stay fully operational amid major network impacting events.

Introduction

Failover

In computer networking, failover is a term that describes switching over to a secondary or standby network connection upon the failure (or abnormal termination) of the previous active connection. System designers usually incorporate failover capability into servers, systems or networks that require near-continuous availability and a high degree of reliability.

Network impacting events

Network disruptions can be caused by any number of factors including hardware or software failures, cyber-attacks, natural disasters, human error or damage to communication cables including fibre breaks.

The standard Service Level Agreements (SLA), or time to repair, associated with most entry-level business connections could leave up to 10% of customers offline, without broadband, for more than a week in the event of a serious fault.

The need for always-on Internet

The growth in cloud computing means that many applications required for basic day-to-day business operations such as accounting, payroll, invoicing, CRM systems, databases, point of sale systems and Microsoft 365 generally all require a network connection to operate. This means even a brief outage has a real monetary impact. On top of plummeting employee productivity, disruptions are a huge liability in terms of missed opportunities. In an age of instant communication, customers expect timely responses. If a business fails to deliver, it can damage reputation and result in a loss of goodwill among existing clientele.

90%
of CIOs report using the cloud in some way

75%
of CIOs expect cloud use to increase in the next two years

64%
of Irish firms plan to move more to the cloud

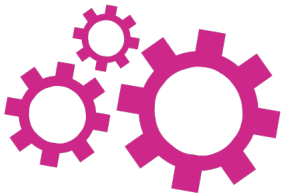
Statistics sources: Equinix 2018 Global Interconnection Index, Deloitte 2018 Manifesting Legacy: Looking beyond the digital era 2018 global CIO survey

What goes down with the Internet?

- Microsoft 365 applications
- Communications: email, VoIP telephones, web queries and social media
- Accounting and payroll packages
- Potential security risk and data loss
- PoS (Point of Sale) systems and card payment terminals

Costs of downtime to a business

Revenue loss



Plummeting productivity

Reputational damage

Disgruntled customers

How Orion delivers always-on Internet access

- Each Orion is created with two diverse connections: one primary and one secondary.
- Usually, all Internet traffic uses the primary connection.
- An outage occurs affecting the primary line.
- All connected systems and devices switch quickly and smoothly to the secondary line.
- These systems and devices continue to operate normally for the duration of the outage.
- Once the main connection is restored, the router will automatically fail back to the primary source.
- Both primary and secondary connections are remotely monitored.
- Customers receive a customised notification whenever Orion is deployed.

By replicating enterprise-level functionality on a cost-effective platform, Orion empowers all companies to demand effective, affordable business continuity.

Cost-effective continuity

As migration to the cloud continues to gather speed, Orion was envisaged as a means of democratising access to network redundancy. Using clever configuration and two diverse network connections, Orion keeps companies connected to all vital cloud applications, on the same public IP address, even in a major network impacting event.

Award-winning technology

Large multinational companies have protected themselves against network outages for years. The solutions they employ involve connectivity and hardware that are light years beyond the budget of many businesses.

By utilising cost-effective hardware and affordable connectivity, Orion brought business continuity within the budgetary reach of many companies for the very first time. This transformative shift is why Orion was selected as an IT Project of the Year at the Tech Excellence Awards.

Most failover solutions on the market employ different public IP addresses on the primary and secondary connections. During failover, the change in IP address causes all inbound applications with IP dependency to fail.

Orion was designed to create a solution that preserved the same public IP address across multiple Wide Area Network (WAN) links including lower cost connections such as VDSL and FTTH.

Product development

Benefits of maintaining IP during failover

The benefit of maintaining the same IP stream is that all real time interactive applications such as Voice over Internet Protocol (VoIP) telephone calls and video conferencing sessions continue to function normally without dropping or incurring any downtime.

Alternative to dynamic routing protocols

Enterprise-level failovers traditionally run a dynamic routing protocol. However, because Orion is designed to work with entry level WAN connections a dynamic routing protocol is not possible because only specific Ethernet types are able to pass over these types of WAN feed. This meant that the Orion engineering team needed to find a way to incorporate entry-level WAN connections, often delivered by DHCP or PPPoE, while still delivering a fast, dynamic failover.

Engineered, tested, proven

The creation of a unique solution that preserved the public IP address and provided extremely fast failover required extensive experimental development. Once engineered, the performance of the solution was proven through a series of tests that mimicked a real-life load of the application in a sandbox environment, before being pushed to a live customer network, prior to commercial rollout.

Orion allows automated failover between separate WAN connections. Failover and fail back occur within milliseconds while preserving all active IP sessions.

Unique functionality

Orion outperforms other failover products in a number of critical areas.

Typical drawback of other failovers: The public IP address of secondary WAN is different causing all active IP connections to drop in the event of a failover, and all inbound applications with IP dependency to fail.
The Orion difference: Orion provides full resilience using two distinct WAN feeds and maps them to the same static IP address for the customer's router and firewall. The benefit of maintaining the same IP address or subnet across both connections is that all real-time, interactive applications like file transfers and VPN (Virtual Private Network) tunnels continue in an outage.

Typical drawback of other failovers: VoIP calls will drop during failover. A VoIP call is set up between two IP addresses. The voice traffic is then routed between the end points in both directions. If the IP address at one end of that connection changes, the call will drop.
The Orion difference: Orion's ability to maintain the same public IP allows VoIP calls to continue throughout a failover event without dropping any calls.

Typical drawback of other failovers: Significant switchover time.
The Orion difference: Orion's failover and fail back occur seamlessly within milliseconds of network disruption and restoration.

Typical drawback of other failovers: Failover requires manual intervention resulting in the network being offline for significant periods of time.
The Orion difference: Orion's failover and fail back require no change to internal systems and no action on the part of the end user or their IT support.

Connectivity
Orion is designed to support multiple Wide Area Network (WAN) technologies including Fibre, LTE and Fixed Wireless Access.

Configuration
Orion normally traffics over the primary link with the back-up path only used in an outage. However, Viatel's networking expertise allows alternative configurations. For example, simultaneous trafficking on both WAN links with traffic directed by priority and type.

Connectivity and configuration

Orion is designed to be WAN agnostic in order to cater for different network architectures and combinations. Orion's ability to provide guaranteed availability across diverse WAN paths while maintaining the same public IP address is highly innovative because traditionally both WAN connections have their own unique IP addresses.

As it is uncommon for a primary and secondary connection to share the same IP address Orion engineers ensure that no conflicts occur when using network address translation (NAT) between servers. NAT is a method of remapping one IP address space into another by modifying network address information in the IP header of packets while they are in transit across a traffic routing device.

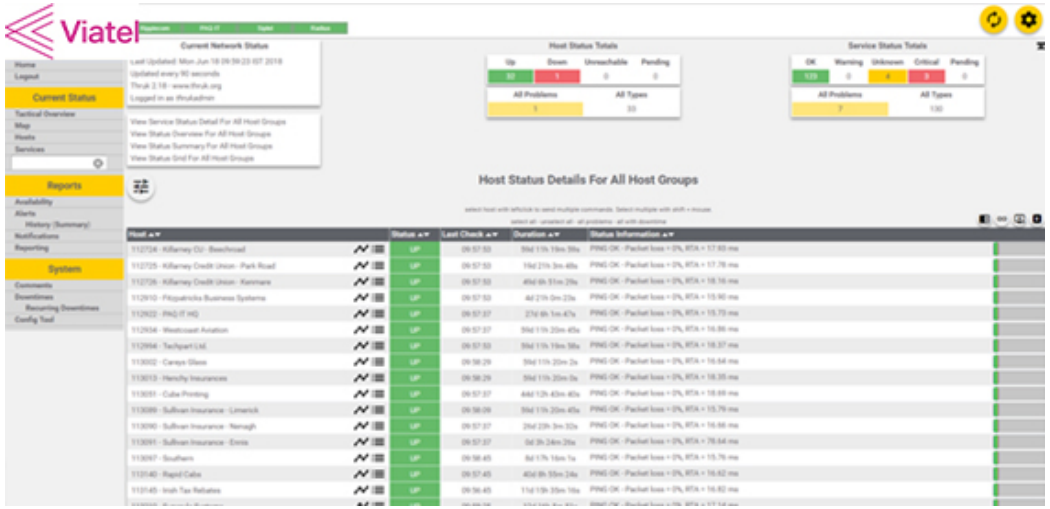
Orion's capacity to incorporate LTE connectivity while maintaining the same public IP address is particularly noteworthy. LTE networks typically only provide private IP addresses. As such, they were previously regarded as unsuitable for organisations with an IP address dependency. Businesses may require a static IP address for their servers, email servers, website hosting, CCTV cameras and so on.

The Orion portal displays various network statuses, including:

- Status of primary link
- Status of secondary link
- Status of customer facing port
- Customer ability to transmit traffic
- Duration of continuous connection
- Latency (to Google)
- Packet loss
- Internet usage

Portal visibility

Orion customers can gain access to a dedicated web-based portal giving the IT team invaluable insights into network performance and data usage. For IT service providers, this visibility allows easy remote diagnosis of hardware issues. Combined with Orion's automatic failover and maximum uptime this results in far fewer call outs and huge resource savings for our IT partners.



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