128 TECHNOLOGY

Improving Connectivity across Remote Operations:

Gain speed and efficiency while optimizing costs with a service-centric network that makes it easy and reliable to connect remote locations with the data they need for success.

Executive Overview

For businesses with distributed remote operations—which is common in the energy, mining, and construction fields—the fewer people on-site, the better. After all, it's time-consuming and expensive to place workers at sites in the desert, mountains, frozen tundra, or at sea for extended periods of time, while bringing in the equipment and supplies they need. It's also costly to bring additional workers on-site for shorter periods of time, such as for truck-roll troubleshooting and other service issues. Aside from the expense, it can be downright dangerous for people to work in these remote locations and brave the elements.

128 Technology provides a servicecentric architecture and several key features that help the network achieve continuous, costeffective connectivity for distributed, remote locations.

By reducing their remote headcounts, businesses can not only increase productivity and worker safety, but they can also cut expenses significantly. But to do that, they must often transform their remote operations with more automation and better access to data. Oftentimes, data and equipment must be accessed by team members in different locations, driving a networking requirement to either provide real-time connectivity to stored data at the remote site, or moving the data from the remote site to the cloud. This can be extremely challenging due to a range of conditions that are commonplace at the outer reaches of civilization, including:

- Limited connectivity options that often lack reliability and availability
- The high cost of bandwidth in remote locations
- Poor and intermittent network performance

To enable digital transformation across their remote locations, businesses are realizing that a better approach to networking is needed. This means squeezing more bandwidth out of existing networks, improving availability through redundant links and automatic failover, and reducing unnecessary packet overhead whenever possible. That's where a smarter network can make a significant impact.

Challenges

Truly isolated remote operations use-cases, such as extracting oil at sea, mining from a mountain, or building a new road through the desert, often rely on unreliable, expensive, and potentially poor-quality connectivity. The satellite, line of site RF, or LTE connections available at these remote sites all have their limitations when it comes to reliably delivering essential data accessed from distributed locations or in the cloud.

Wireless connectivity in these areas can be very sensitive to environmental conditions such as rain and snow. Shared usage can also be a challenge for many organizations as spectrum is finite, so when an unrelated system starts using some of the wireless bandwidth, it can limit or affect the bandwidth available to them.

Latency is also a major source of frustration for users who collaborate across remote locations. This can dramatically reduce throughput, especially when the TCP protocol introduces additional latency. Even traditional terrestrial networks can experience latency variations that depend on other traffic on the link or in the network. The sum and variations of all the data going through intermediate routers can cause significant slowdowns.

In addition to performance and reliability issues, current wireless technologies such as satellite, LTE, and line of site RF come at a high cost. Connectivity expenses can vary drastically based on geography, location, and other factors, making it difficult for organizations to budget accurately and keep operating costs low. In the case of usage-based plans, going over the allotted data means an organization ends up paying much more for each additional gigabyte needed.

For companies with remote operations that require realtime access to mission-critical data, a fundamental shift in networking needs to occur.

128 Technology Solution

Based on years of research and deployment experience with customers, 128 Technology offers a networking solution that has the resiliency, efficiency, and cost savings needed to be truly transformative for remote operations. Whether a business is seeking to centralize its expert headcount and better leverage its most talented employees, expand its service offerings and build new revenue streams, or perform analyses faster than ever to improve productivity, Session Smart™ Routing can make all the difference.

Business Use Cases

Remote Monitoring and Communications

An oil company with several drilling operations at well sites can resiliently employ both satellite and LTE methods to connect remote workers with experts stationed at the corporate office. The experts would simply login from the cloud to provide support whenever they're needed and communicate with on-site workers via phone or video conferencing. By enabling better, more reliable unified communications, the firm can move its expert headcount from remote sites to its corporate offices, where they can share their expertise with outposts around the world.

Service Creation

A telecommunications company operating in the Canadian Tundra seeking to extend its services to a treacherous stretch of highway, faces cost and deployment challenges erecting a cell tower and running fiber in such a desolate location. By utilizing a combination of satellite and line of sight RF, and leveraging session migration between the two, the company can create a reliable wireless connection and a new source of revenue that was once impossible.

Time to Market

For oil prospecting ships in the Gulf of Mexico, the faster they can deliver their data to headquarters for analysis, the more accurately they can direct drilling operations. But without reliable connectivity, the outfit is forced to hand deliver the data back to central operations, which often takes more than four months. By reducing overhead and optimizing satellite links, the ships are able to deliver this data and find the right location much faster.

Key Features

The 128T Session Smart Router offers several connectivity features that improve throughput, reliability, and costs, while enabling remote operations to work smarter.

- **Session migration:** The 128 Technology Session Smart Router addresses the challenges of poor connectivity by providing session migration across multiple paths. Session migration works when two separate WAN links support a given service. When one of the connectivity options is unavailable, the session is migrated rapidly to the second link, enabling the end-to-end application to operate continuously. In the process, all service-specific policies continue to be enforced, providing high reliability for mission-critical applications and data.
- **Overhead reduction and optimal usage:** With IPSec and other encapsulation protocols, security comes at the expense of significant packet overhead. However, by using Secure Vector Routing to replace them, 128 Technology reduces overhead by more than 30%, leaving businesses with more bandwidth, but not at the expense of tight security. This allows organizations to send more valuable data from the remote site to the cloud or save significantly on connectivity.
- **Session optimization:** Instead of utilizing only a small fraction of the available bandwidth through a challenging link by virtue of the TCP protocol, the 128 Technology Session Smart Router features session optimization, which automatically detects high latency or loss across a given path and optimizes the transport protocol to fully utilize the available bandwidth. For some customers, this has resulted in up to a 10x increase in throughput across satellite links, eliminated capital expenditures on standalone optimization components, or significantly lowered operational expenses by removing optimization add-ons purchased from the service provider.

Summary

Enabling remote operations with better access to data can be particularly challenging for businesses who are ready to transform. Doing so requires overcoming connectivity challenges, bandwidth costs, and performance impairments. With a smarter approach to networking, businesses can enjoy better access to valuable data from central and remote locations, enable access to data in the cloud, reduce the on-site staff requirements at remote locations, generate significant cost savings, and even offer new revenue-generating services. 128 Technology provides a service-centric architecture and several key features that help the network achieve continuous, cost-effective connectivity for distributed, remote locations.

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ABOUT 128 TECHNOLOGY

128 Technology makes your network do what your business needs, by changing the way networks work. Our professional grade software teaches routers the language of applications and services, letting them understand the requirements of individual services and segments, and adapt the network dynamically to deliver what the business needs, when and where it needs it. We make routers Session Smart™, enabling enterprise customers and service providers to create a service-centric fabric that's more simple, agile, and secure, delivering better performance at a lower cost.