



Cathy Horst-Forsyth

A Note From our CEO - Cathy Horst Forsyth

As Spring turns to Summer, it's finally starting to feel a bit more like the good old days – client meetings in the office, more frequent air travel and yes, in person conferences are back as well. With the pandemic now somewhat in the rear-view mirror, much time is being spent discussing lessons learned and implications for the future. There's some tremendous insight out there, and some key themes that continue to resurface as well.

One topic that took center stage both at the MIT CIO Symposium earlier last month, and at ONUG's Spring Conference in April was hybrid cloud: most enterprises now agree that while many applications will live and grow on public cloud infrastructure, there will still be a need and/or rationale for on-prem computing well into the future. Thankfully, most IT leaders now agree cloud migration is a long-term journey that isn't just about moving workloads – it's about organizational and process change, and it's about cultural change enabling business innovation through the flexibility, scalability and resiliency of cloud-based infrastructure.

For more about the tremendous benefits of hybrid cloud infrastructure, (and some unique insights on the benefits of an open-source, engineering led approach to getting there) check out ONUG's panel featuring Pablo Espinosa from Target, which highlights both the advantages of this infrastructure as well as some best practices for getting there.

Another hot topic these days is resiliency: Cyber resiliency, organizational resiliency, and the resiliency of IT infrastructure as well. There are certainly no easy answers, and there's a lot to unpack, so I asked our Hybrid Cloud Practice Leader, Alex Petrov, for his advice on how to engineer cloud solutions for optimal resiliency - here's a summary of his thoughts:

- First, consider that cloud infrastructure is innately more reliable than on-prem operations – most experts argue anywhere between 5 and 10 times more reliable
- That said, if cloud migrations are not executed thoughtfully, applications can and will fail. Application performance cannot be an afterthought. Rationalizing the application stack is an important first step. Next, thoughtful collaboration between developers and infrastructure operators will ensure that applications can run optimally in production. Lastly, having the right toolset to monitor security and performance is critical. And this space is tricky, because while there are many great tools out there, there's far less integration than needed, and that one proverbial "pane of glass" is still not available.
- It's also critical to consider network ingress and egress into the cloud; while it's true that cloud infrastructure performs solidly, network failures and downtime will still negatively impact application performance and these need to be cared for.

I hope you'll 'flip the page' to read an interesting article with Gil Santaliz, founder and CEO of NJFX. Gil talks with Barry about a very different, yet incredibly important risk, the risk of circuit failure, including opaqueness in the procurement process and mapping fiber routes to global business requirements.

As always, if you would like more information on this quarter's issue – drop us a line!

Team Spotlight - Jonathan Pillsbury

Jonathan Pillsbury "JP" has been key pillar of the Strongbow team for the past four years. As a Senior Financial Analyst, JP is a go-to source for constructing the complex financial models that drive powerful insights to make critical recommendations and decisions. Given his extensive experience working on the carrier-side, JP is able to leverage his in depth knowledge of intricate pricing structures to help create actionable recommendations for our clients. After graduating from the University of North Carolina, JP completed his MBA at Queen's University, also in Charlotte. During his off hours, JP is an avid DIY-er who has built his own deck, fire pit and sheds outdoors, while making Kombucha and cookies indoors. When he is not enjoying time in the outdoors with his two dogs and four cats, JP volunteers his time at various local non-profits.



Our Managing Director of Engagement Strategy, Barry Platzman, recently sat down with the Founder & CEO of New Jersey Fiber Exchange (NJFX), Gil Santaliz to discuss his unique perspective on global connectivity and the nuances of designing network solutions for optimal performance.



BP: So Gil, can you start by giving us a primer on NJFX?

GS: NJFX is a subsea cable landing station for the North American market, located here in NJ. Unlike traditional landing stations, owned and operated by established carriers like AT&T and Verizon, NJFX is a completely neutral environment. This neutrality creates an open environment that gives our customers confidence and ensures there is no conflict of interest between operator and landlord. Over time, we have expanded our operation to include 30+ operators in a diverse hub that offers "middle mile infrastructure".

BP: When enterprise customers buy global connectivity, do you think they understand what they are buying?

GS: Good question, I would have to say that often they do not. They certainly know beginning point "A" and an end point "Z", but they don't understand the underlying infrastructure between those points and over time, obfuscation only increases. At NJFX, we work with our clients in great detail to make sure they understand everything that is happening from our location to their endpoint, including cable capacity, bandwidth, others using the same path and unique geographical vulnerabilities. In the past, an enterprise might know the specific cable they're riding, but the underlying paths and subtending carriers are frequent blind spots for many customers.

BP: How do customers address this "blind spot", do they see it as an issue or something they need to address?

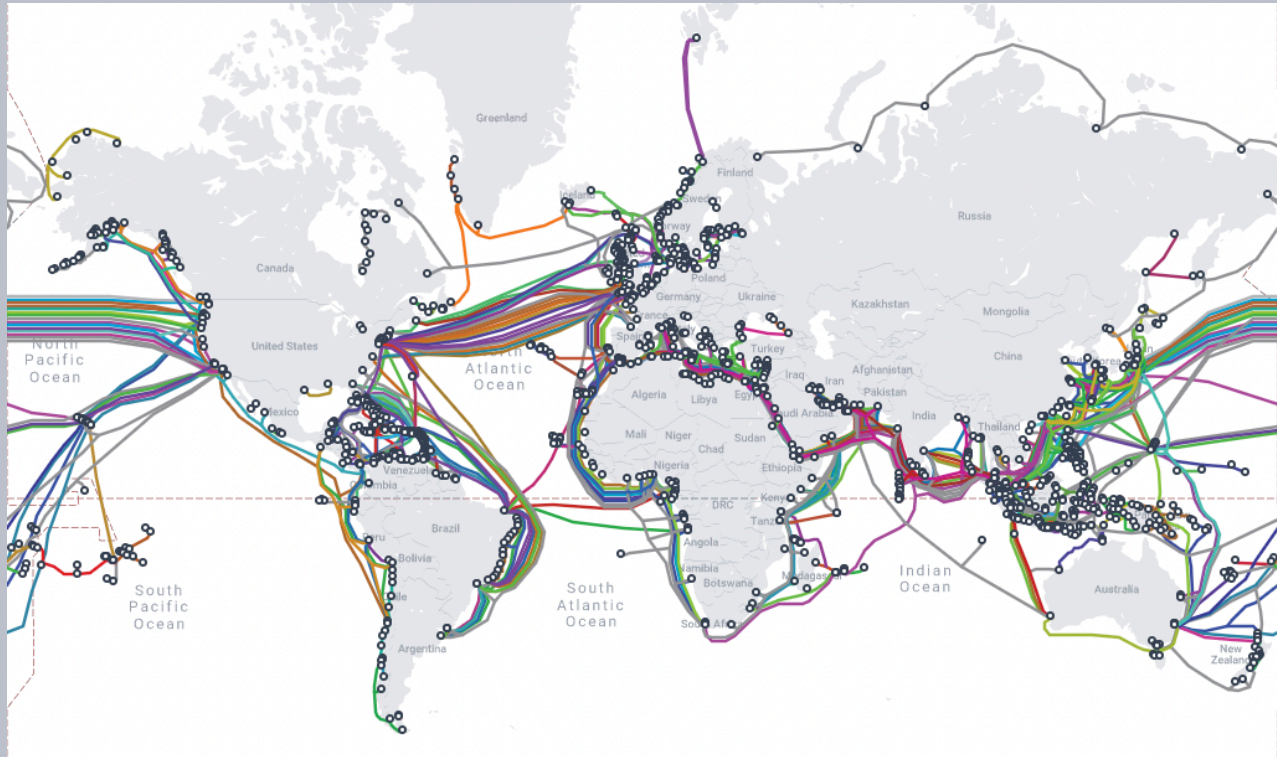
GS: As soon as there is an outage and they realize their planned diversity is ineffective, yes there is an issue to address. Unfortunately, network operators are reluctant to share route details, due to regulatory constraints and security concerns, where operators could become vulnerable to nefarious interference with their services if they reveal too much. Only the largest enterprises who put pressure on the system are able to get access to this information under NDA, and even then, it could take 3-6 months to get the information the enterprise needs. Circuit design teams should push for a complete walk-through of the backhaul systems, hubs used and the fiber optics connecting various subsea stations.

BP: How does NJFX help its customers with this problem?

GS: At NJFX we take the time to 'peel back the onion' for our customers, explaining what their traditional carrier is actually buying from someone else and what they are directly providing. We then facilitate introductions to the subsea and backhaul operators, allowing our clients to reverse engineer current routes and more diverse alternatives. In some cases, we orchestrate deals front-to-back; for example, a large financial firm may take the time to understand the market and then go back to their carrier with a set of requirements and specific cables to include in their design. This is especially important for global organizations, who may require certain cable paths that avoid metropolitan hubs like London or Paris, since they already have circuits in those cities. You want to limit your vulnerability and we have the insight and best practices to work with these operators when they are designing the network.

GS: I would say that term does go back 20-25 years, back to the days when carriers owned their own network infrastructure. To level set on terminology – if you owned the network, you could provide two paths: a primary and one to take over in case the first should fail... a “self-healing ring”. This has changed over the years, as carriers have become reliant on other partners, and now lack insight into underlying paths. The term self-healing is often used without understanding what it really means. More discerning buyers will purchase diverse paths from different carriers all operating in parallel, enabling them to sustain 2-3 hits on their service without being affected.

GS: Yes, as a result of 5G deployments, carriers are opening more splice boxes on long haul and metropolitan fiber. Over the years, characteristics of the fiber in the US have changed; whereas before long haul fiber was untouchable, it isn't anymore. And with the recent need to capitalize existing assets, long-haul routes might experience interruptions because of 5G deployments, which are now more and more common.



GS: Subsea is a very different animal - there are less outages, but when there is one, it's bad. That is not to say that there is never an issue; despite routes being clearly marked on maritime charts, a cargo ship might hit the cable with an anchor. Nowadays, however, subsea operators have visibility into "shunt faults" – a break in the insulation of the cable – and can be proactive about repairing them before the exposed cable is hit again. But should the worst happen, you are looking at 3-6 weeks of outage depending on how prepared the operator is for repair. This is why multiple, diverse paths are critical to a resilient enterprise network. A bit of trivia for your readers here: there is an Atlantic underwater canyon called Porcupine Sea Bight with 95% convergence of transatlantic systems; an incident on that island would essentially be catastrophic, cutting off EMEA from North America. Only one system does not traverse that route – a bypass solution offered via NJFX.

GS: Commit the resources required to understand what you are buying. We live in a world that is reticent to change, but given the time sensitivity of applications nowadays, a 4–5-hour outage is catastrophic. Enterprises should make path supervision a part of their circuit lifecycle management process to ensure their network paths haven't changed since they first purchased those circuits. I would also recommend adding contractual assurances to require notice of any changes to fiber in advance of the work.

Thanks very much Gil, we enjoyed hearing about NJFX and receiving the benefit of your thoughts on the evolving infrastructure – Barry Platzman

Circuit Diversity Review - A Weapon To Combat Down-time

At Strongbow we spend a considerable amount of time helping customers design network solutions that optimize application performance, and there is a lot of focus on the physical layer, whether it's last-mile, or long-haul subsea cables. Enterprise customers have mission critical services not only in the data center, but across large campuses, contact centers and other facilities as well. Any service interruption might cost millions in lost revenues so there is an obvious value in making sure the underlying infrastructure is as resilient as possible.

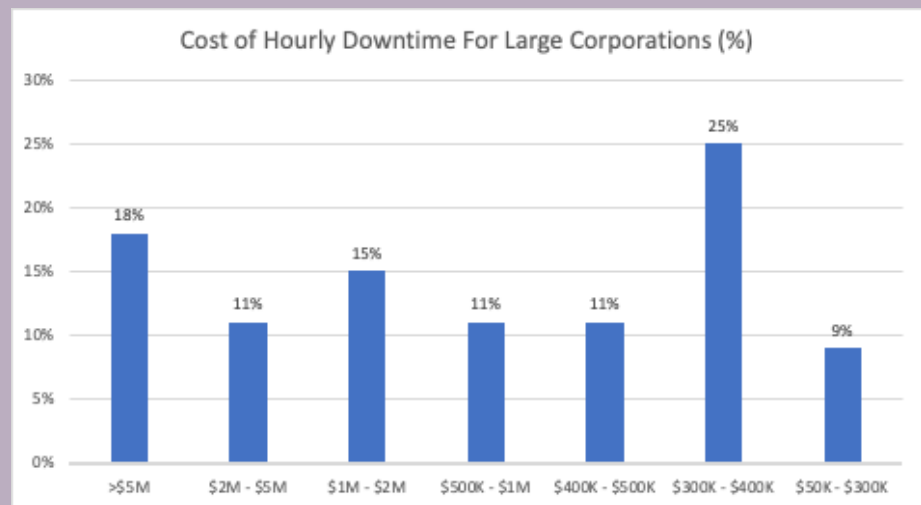
As Gil mentioned, fiber cuts are increasing for various reasons. As a result, enterprises should ensure they have proper visibility into circuit paths, so they can mitigate the risks of a single point of failure (SPOF). We have seen some "perfect storms" over the years, of a fiber cut, a routing configuration error and a maintenance window all happening at once - resulting in critical location outages for an extended period. So how can enterprises avoid these pitfalls? At Strongbow we help customers ensure their network connectivity is designed for resiliency. Whether you are planning for new connectivity or your circuits are already in place, conducting a review of circuit diversity is a valuable and illuminating exercise. By meticulously tracing fiber routes, we map cable paths for our customers to identify potential SPOFs. Strongbow works directly with our customers' network providers in this process, accessing and reviewing KMZ maps (detailed circuit route information). As we gain visibility into the circuit routes, vulnerabilities in the physical design come to light. Examples include two circuit paths in close proximity to one another, crossing circuit paths, using the same river crossing etc.

Once these vulnerabilities are identified, a remediation strategy is prepared. Our deep knowledge of fiber paths and network infrastructure allows Strongbow to identify alternate routes that improve diversity.

Sometimes this involves switching providers, or simply working with incumbent providers to re-route existing paths or perform special construction.

Finally, we recommend that our customers put a monitoring system in place to detect changes in the physical design. Carriers can perform grooming and reconfiguration of routes without consulting Enterprise clients, which poses an obvious issue. Ongoing

monitoring of latency can help detect changes in path design and alert Enterprise users to initiate a circuit diversity study, as these changes could signal increased risk of a network failure.



Source: ITIC Survey Figures 2021

It is an exciting time for network connectivity enthusiasts. There are more routes available, giving way to increased capacity, reduced latency, and more resiliency. However, with all the construction and build-out across the globe, cuts are on the rise due to the splicing and repurposing of existing routes and network assets. Enterprise customers can and should act to review their circuit diversity at mission critical locations to identify risks before they cause significant network failures.

About Strongbow

Leveraging our deep technical and commercial expertise from the Data Center to the Desktop, Strongbow helps Fortune 500 companies plan, build, and implement infrastructure modernization plans for improved resiliency and speed to market in today's fast paced digital economy. Our experienced bench of consultants understand next-generation technologies and legacy technologies, including bespoke configurations and outdated systems. Bridging the gap between old and new is critically important when delivering successful change programs with strong, positive financial returns.

We're Hiring

We are currently hiring for [numerous roles](#) at Strongbow. People who thrive here are respectful collaborators that consistently challenge the status quo and are passionate about delivering results for our customers. We thrive in a highly collaborative, learning environment, and always do the right thing – and that is what makes us so successful. Currently, we are actively hiring for Managing Consultants within the Cloud, and Network spaces, Financial Analysts and Sales Executives. If you know someone who might be a good fit with Strongbow's culture, please let us know.