

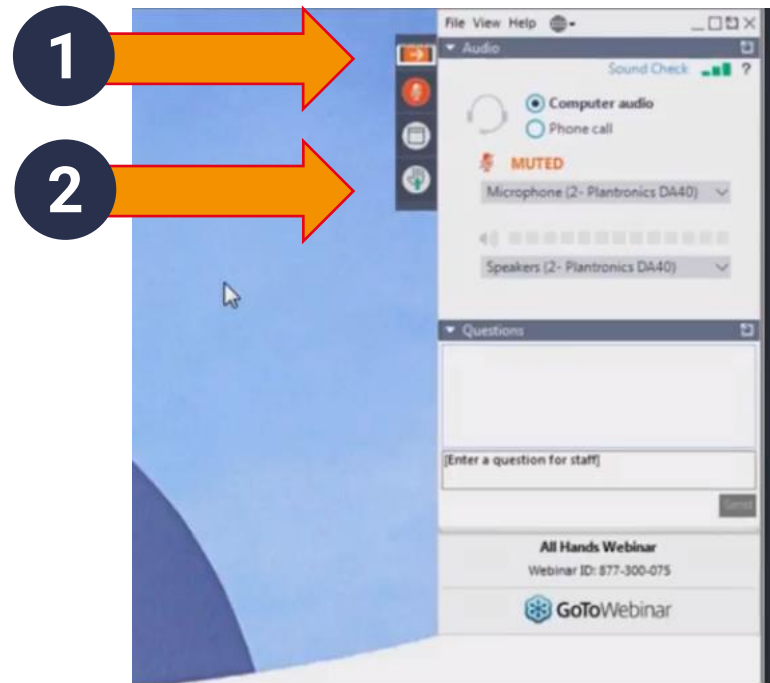
Bridging the digital divide: regional ISP Innovation

Tuesday 26th April

12pm EDT | 9am PDT | 5pm BST

STL PARTNERS

GoToWebinar



- You're in listen only mode
- If you need us, please type a comment
- Feel free to type questions throughout the session for Q&A – if your question isn't addressed in the panel discussion, you will receive a Q&A document in our follow-up
- We'll send you the slides and a recording shortly after the session - do share with colleagues
- On Twitter? Tweet us @STLPartners

Introductions



Patrick Montague-Jones
Senior Consultant



Tim Otto
Consultant



Terry Young
Director, Service Provider
Product Marketing



Carla-Ann Anderson
Operations Manager



Venky Swaminathan
CTO

We ran a research programme, looking to identify regional ISP innovators closing the digital divide



Across America, millions of people are still struggling with adequate connectivity...



25+ million Americans

Urban:



1.5%

Rural:



22%

\$ \$50B+

We evaluated the business models are evaluated against these four factors



Technology

- Use of new, innovative technology to accelerate access network build and optimize the network core for scale



Partnerships

- Working with unique companies and organizations to share skills, technology and increase value provided to customers



Financing models

- Accessing capital for investment through different models and partners – public or private



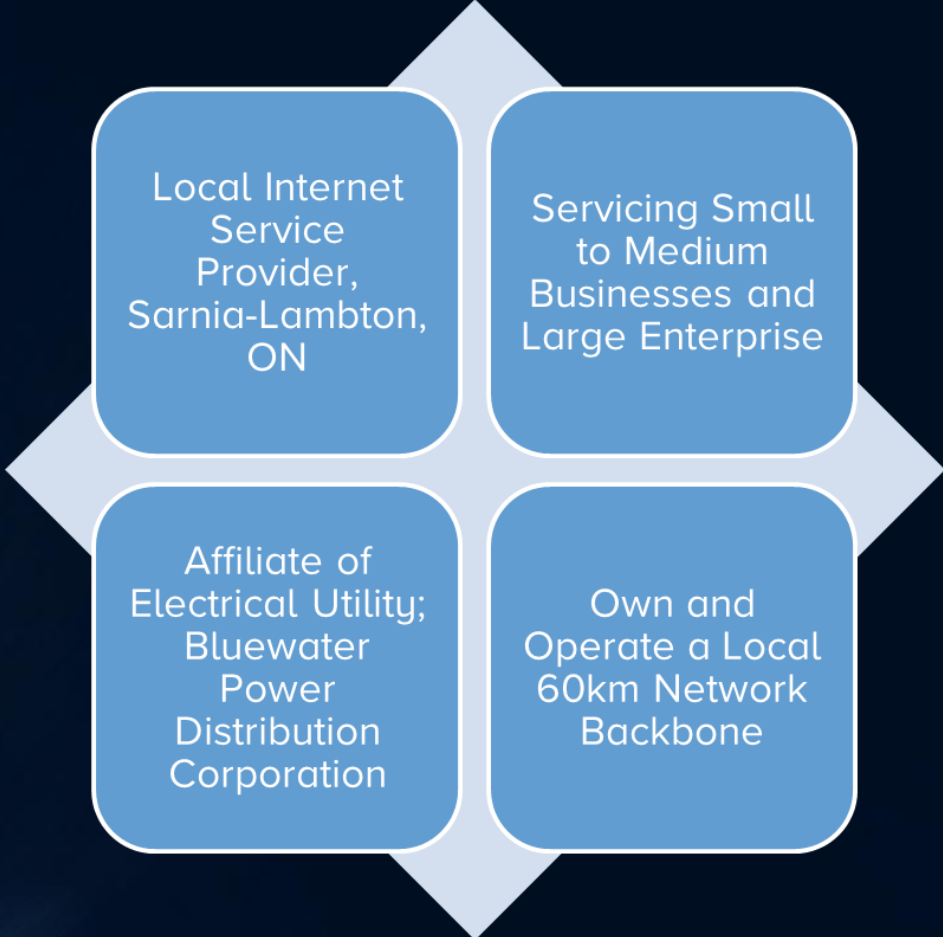
New services and customer segments

- Improving the business case by developing new services and taking these to (new) market(s)



bluewater
REGIONAL NETWORKS

BLUEWATER REGIONAL NETWORKS



OUR ORIGIN

Over 100 Years Serving Sarnia-Lambton

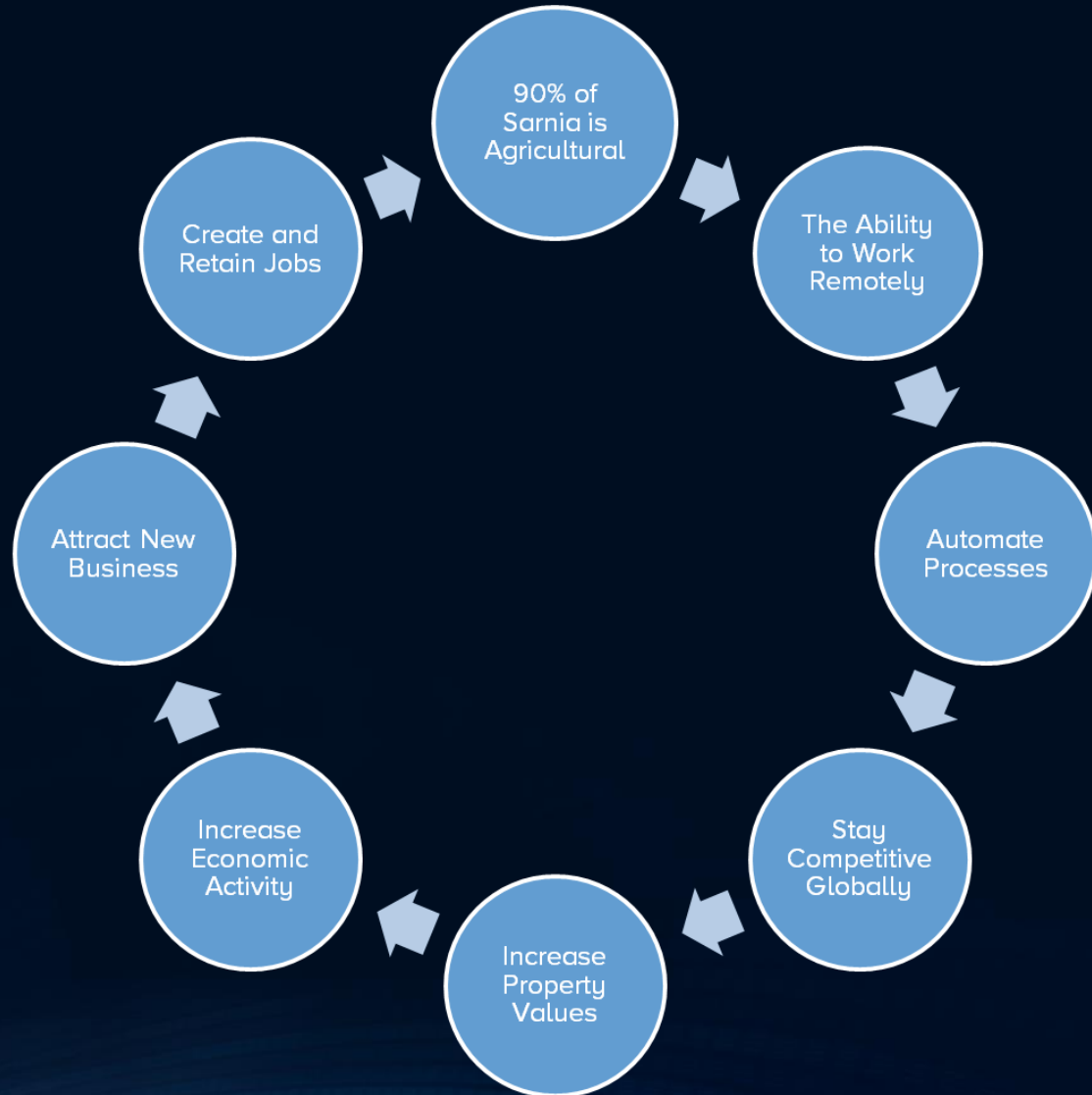
Long History Handling Mission Critical Infrastructure

Understand the Need for Fast Local Response

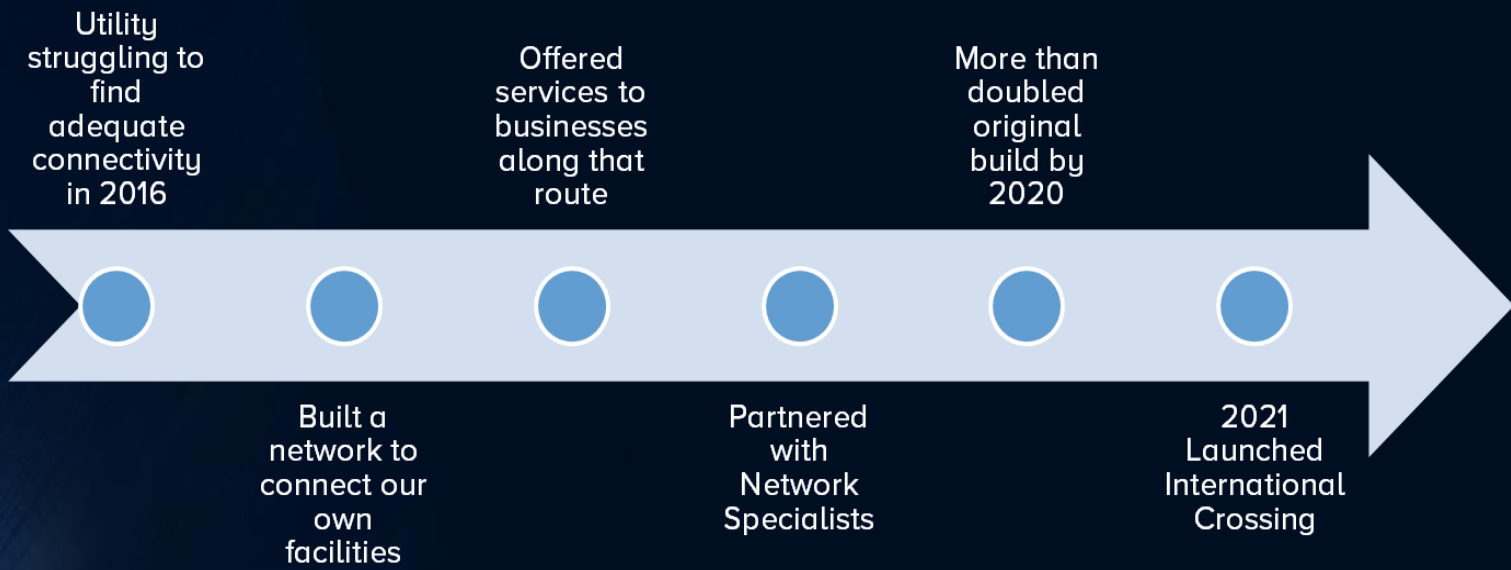
Adopted Principals From Electrical Utility



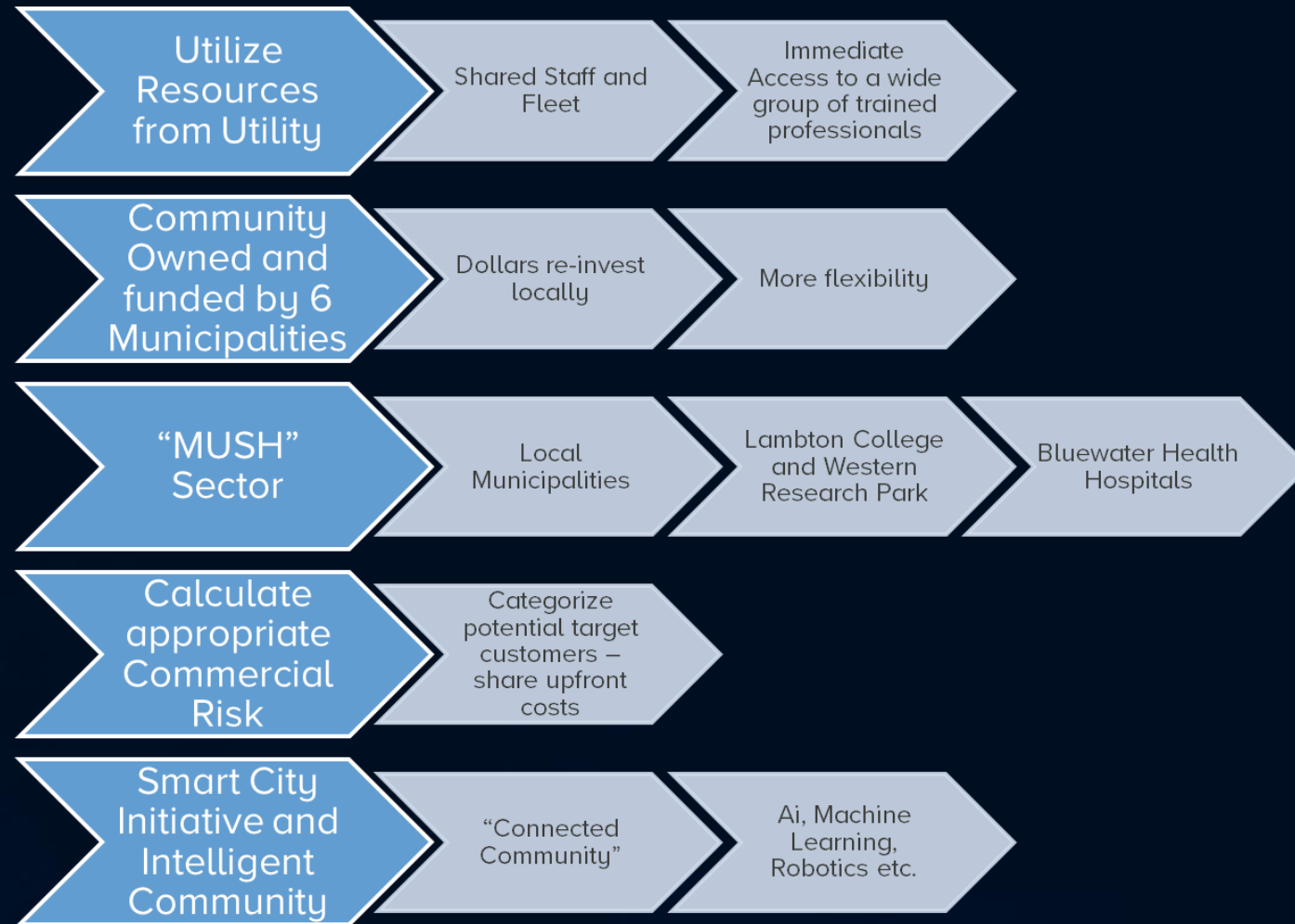
CLOSING THE DIGITAL DIVIDE



EXPANSION OF THE NETWORK



OUR INNOVATIVE BUSINESS MODEL

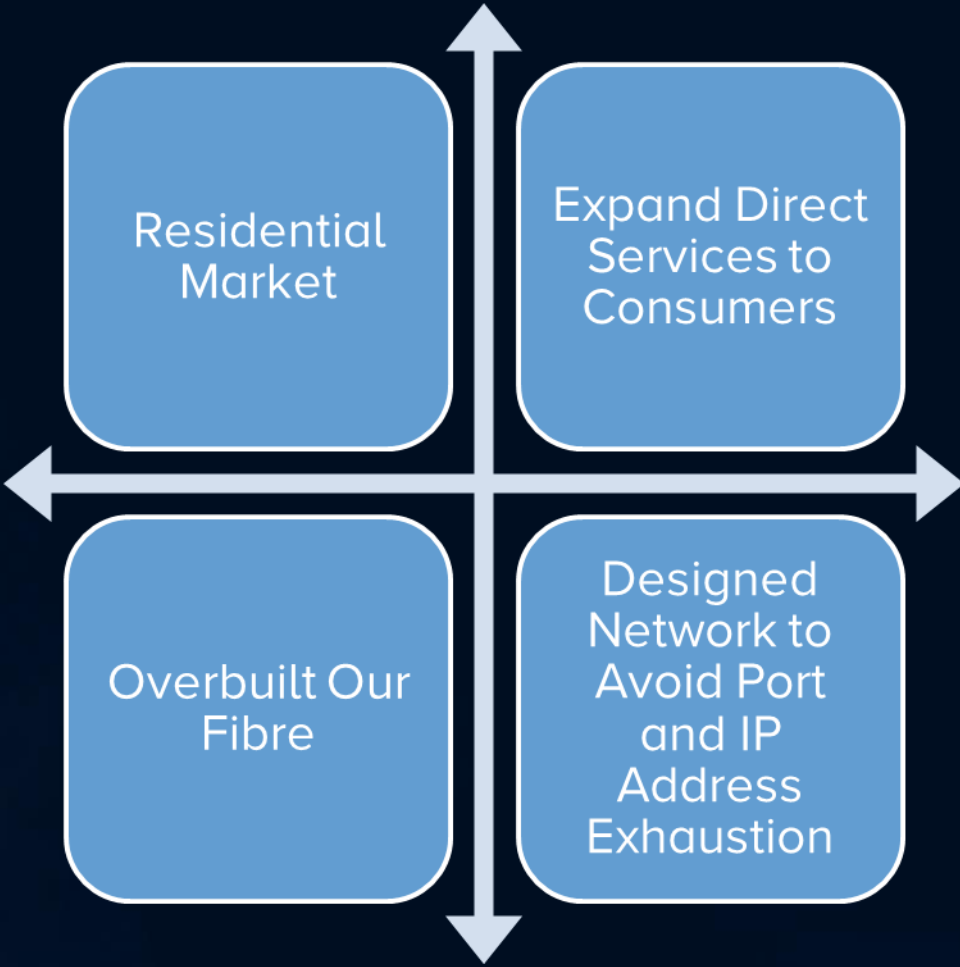


OUR GROWING NETWORK SERVICES

Dedicated Internet Access (DIA)	Layer 1 & 2 Optical Wavelength 10GE to 100GE	IP
TLS	Data Center and Co-location Services	Dark Fibre
Managed WiFi	Commercial Broadband – GPON	LTE



THE PATH FORWARD





TRIL  OLOGY

BRINGING THE CLOUD TO THE EDGE

Fueling the 4th Industrial Revolution

TRILOGY

Multi-Cloud Edge Services Company

Deploying 1.5 Million sq. miles of Edge Coverage

Targeting Eleven Hundred Locations

Premier Path from Cloud to Enterprise

Robust Solution Ecosystem

Focused on AgTech, Energy & Enterprise



| Rural Industry Dilemma

Problem

Inadequate Infrastructure

Enterprises **Require:**

- Cloud Native Solutions
- **Ubiquitous** Reach

Hyper-scalers Require:

- **Nationwide/Global** Connectivity
- Edge Compute & Storage

Applications Providers Require:

- **Scalable** Access to Market

Solution

Integrated Gateway to Rural

Connectivity

- At and to the farm
- Host of technologies
 - Fiber
 - Wireless
- Public and private

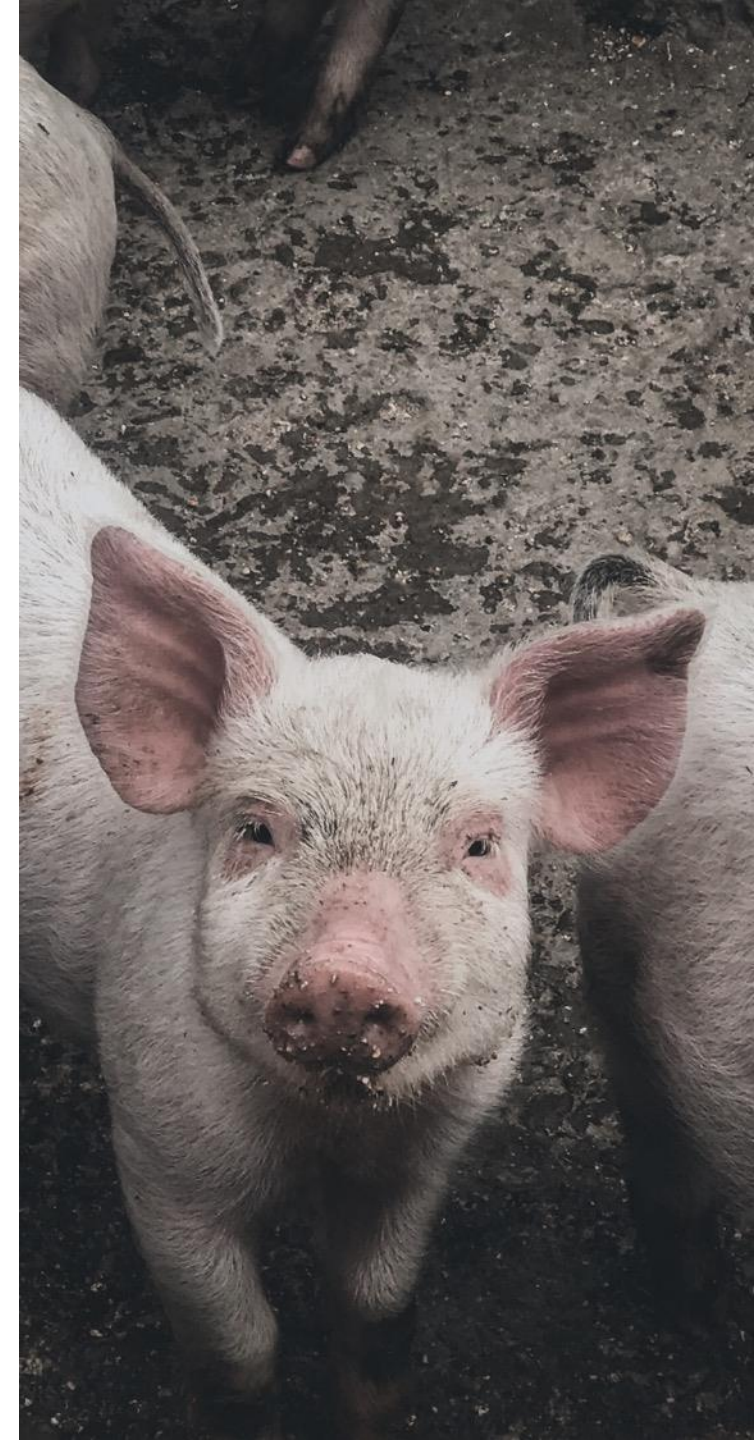
Cloud Computing

- Edge Delivery Platform
- Multi-Cloud, Multi-Tenant

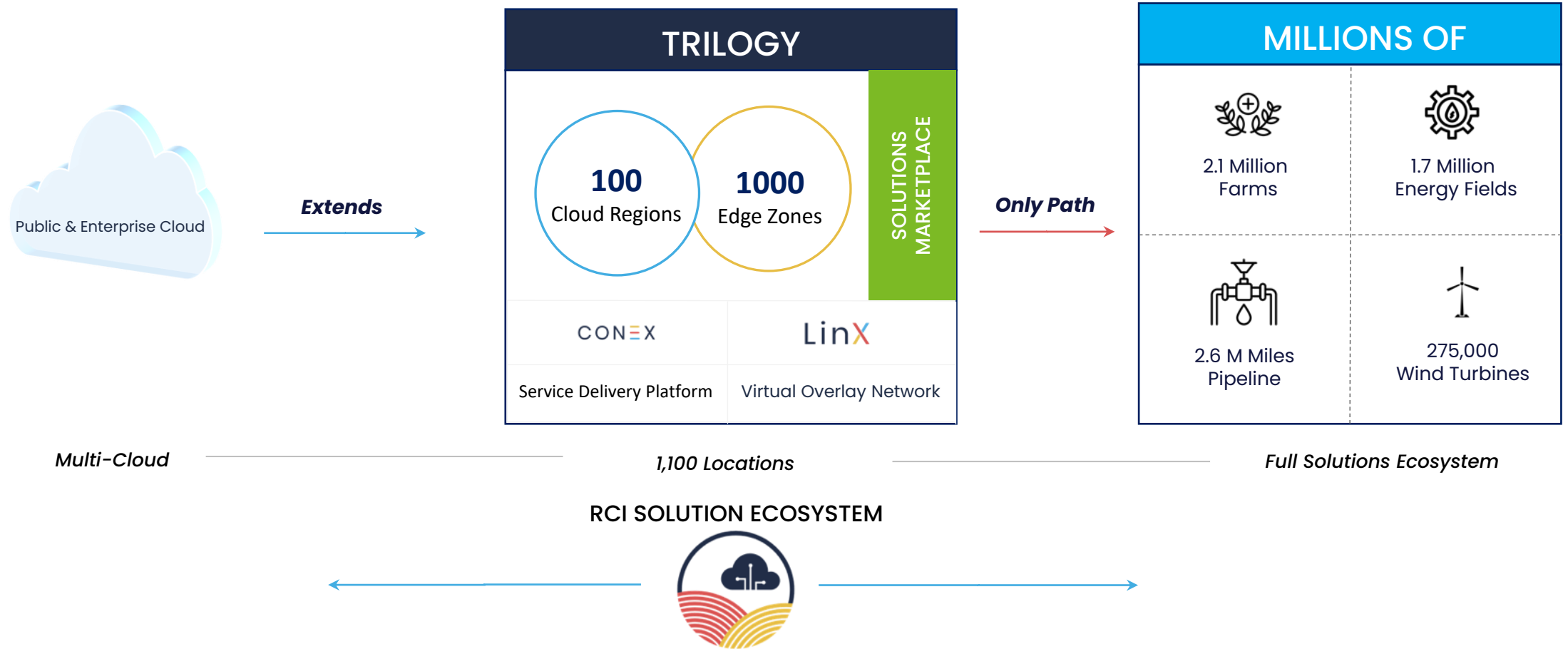
Applications Enablement

- Marketplace - Edge solutions

Value of Edge - Unlocking Agriculture **Connectivity**
+ \$500B in GDP by 2030*



GO TO MARKET: MASS SCALABILITY



MISSION

Build a coalition of rural telecom operators and technology providers committed to promoting and accelerating the digital transformation of rural America.

GOALS

- 1** Enable the next generation of applications and services accelerating automation, innovation and efficiency on a massive scale.
- 2** Build a unified, distributed cloud capability on a single network fabric covering an area of one and a half million square miles.
- 3** Deploy cloud native computing services in telco facilities interconnected with a private, highly secured, ultra-reliable, low latency network.
- 4** Deliver digital transformation solutions for real time data processing generated by connected devices.
- 5** Develop an ecosystem of government, infrastructure, software and solution partners interested in advancing the initiative's mission.

SOLUTIONS ECOSYSTEM



Telco & Cellular Service Provider

Edge Technology Suppliers

Application & Solution Providers

Founded by Trilogy

Positions Trilogy as the Leader

Accelerates Path to Revenue

Marquee Advisory Council

70 Members & Growing

Installations in World Leading Test Facilities

- +250 technologies deployed
- Major Agriculture Academic Test/Evaluations NDSU – Purdue – Ivy Tech
- Test and Commercial Farms
- Corporate Ag Involvement – CHS – John Deere – Bob Cat – Lilly Endowment
- Deployed Private 4G/LoRa Wan – Applications – Single Pane of Glass

EXAMPLES



Farm Automation



AI Security and Safety



Digital Health

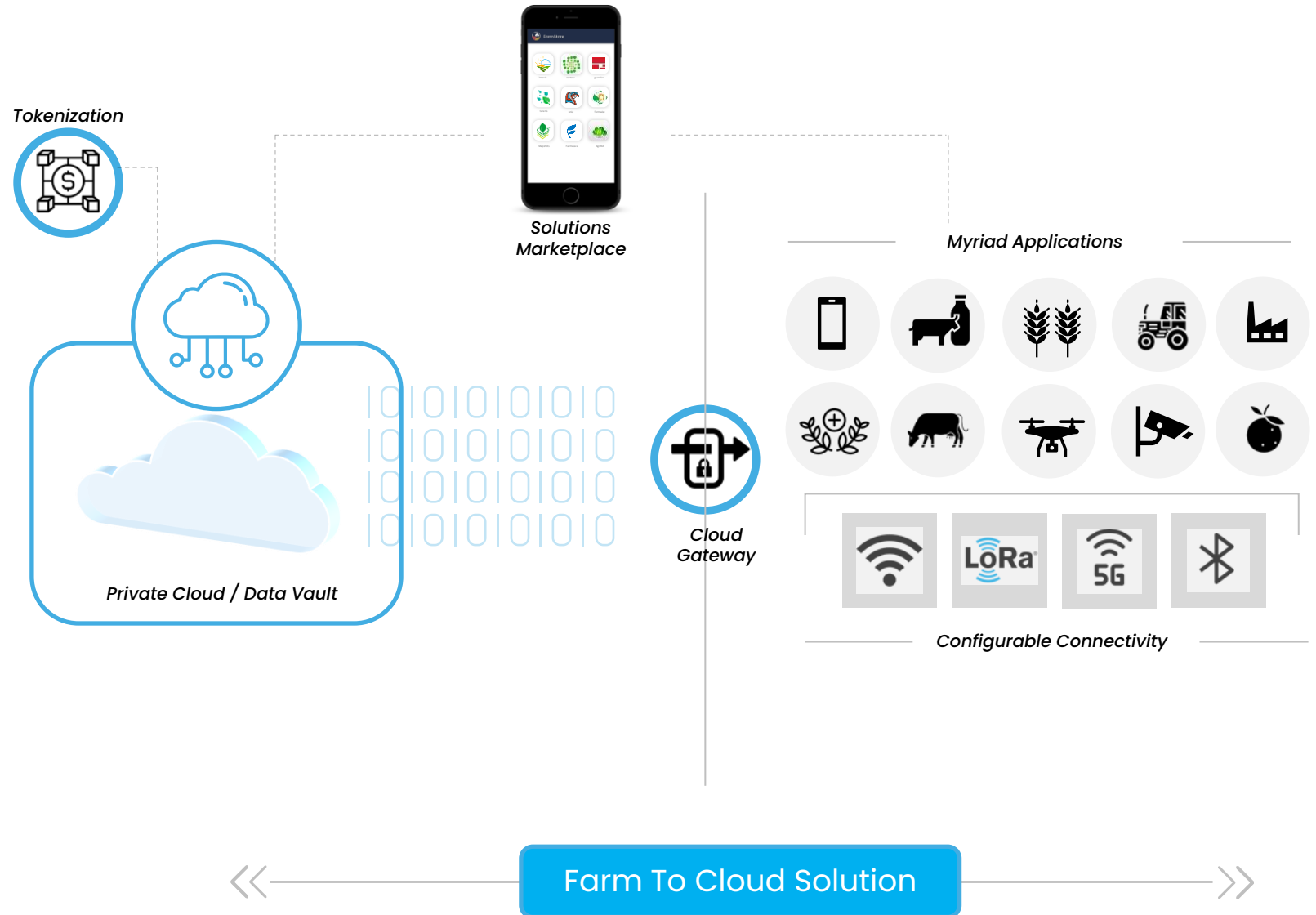


Example: FARMGRID™


FarmGrid™

**Digital Platform for AgTech
Award Winning Product**

- Integrated Connectivity, Cloud & Marketplace Solution
- Omni Channel Distribution
- Delivered as a Digital Experience
- Annual Subscription & Marketplace fees



ACRES: ADVISORY COUNCIL FOR RURAL EDGE SOLUTIONS

Industry thought leaders who will serve as the mission champions for the consortium



Brian Spurgeon

GM | Chat Mobility
Chair Emeritus | CCA
BoD | CTIA



Caroline Chan

VP/GM 5G Global | Intel
BoD | Telecom Infra Project (TIP)
BoA | Open Innovation Lab



John Nettles

President | Pine Belt
Chair | RWA National Security Council
BoD | RWA



Nancy White

VP | Rural Telephone Finance Cooperative
Member & Former BoD | NTCA



Carri Bennet

Partner | Womble Bond Dickinson (US)
LLP
Founding Member & GC | RWA



Mike Kilgore

GM & CEO | Nemont
Past President | RWA
BoD | RWA National Security Council



George Woodward

President & CEO | Trilogy Networks
FCC Precision AG | Task Force
BoA | RWA National Security Council



Chad Rupe

Former | USDA RUS Administrator
Montana Broadband Manager



RURAL CLOUD INITIATIVE

DIGITAL TRANSFORMATION OF RURAL AMERICA

COME JOIN US

 <https://ruralcloud.com>

 [@Rural_Cloud](#)



NETWORK
EVOLUTION



MARKET
OPPORTUNITY



THE TIME
IS NOW

We Need
Your Support

Audience poll

ISP networks are sufficiently secure today to protect themselves and end customers from the vast majority of malicious attacks

To what extent do you agree?

A10

Always Secure. Always Available.

Innovation in the Core

Essential Core Networking Considerations
in Bridging the Digital Divide



Terry Young

Director, Service Provider
Product Marketing

A10 Networks

tyoung@a10networks.com

Higher Subscriber Expectations Widen The Digital Divide

“ The demands on ISPs to deliver exceptional connectivity services to consumers and businesses have never been greater.

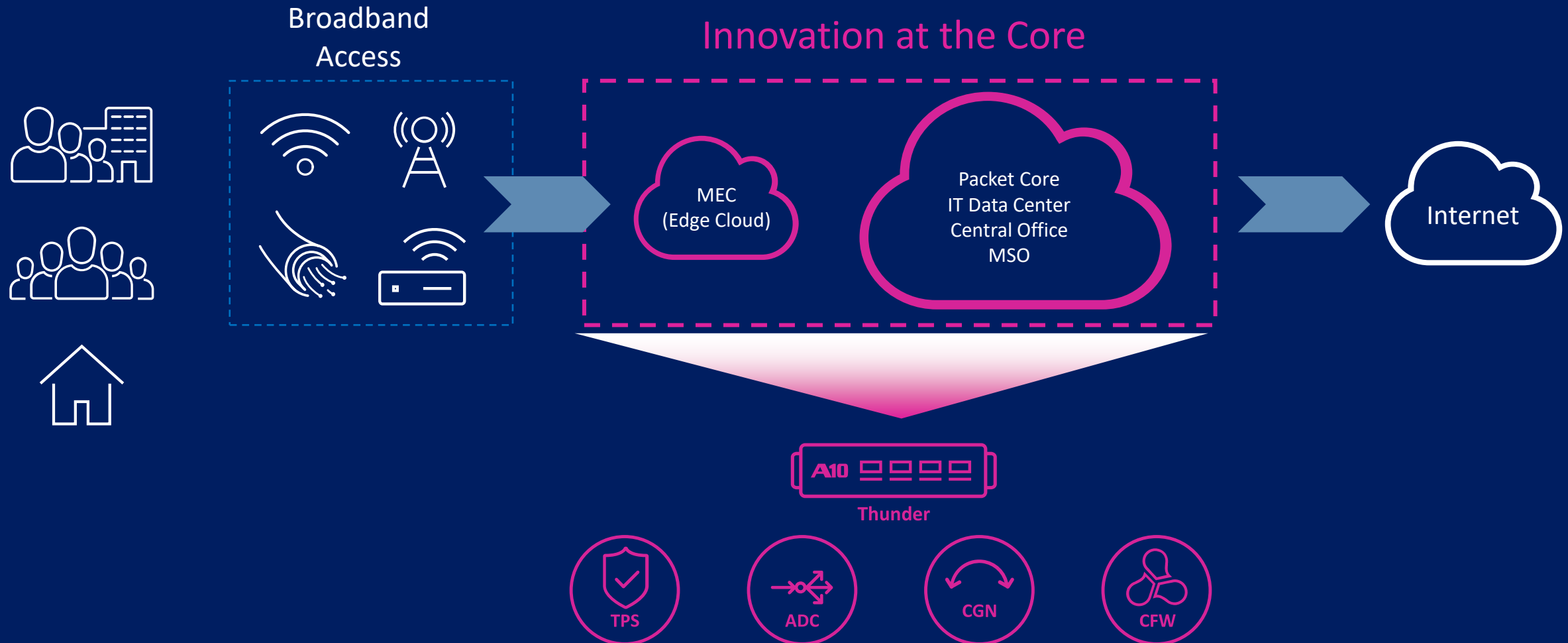
Changing consumer lifestyle, work, and entertainment patterns in the wake of the COVID-19 crisis have shifted the market for broadband services considerably.”

— Kristen Hanich, Senior Analyst,
Park Associates



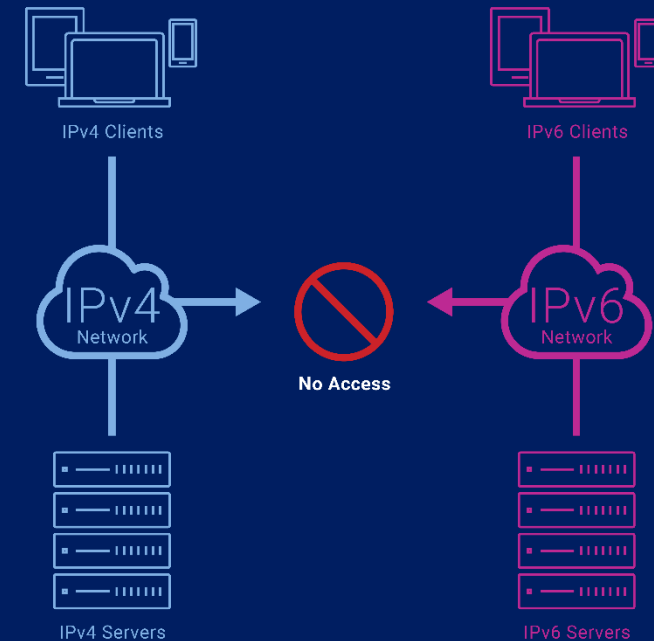
A10 Secures the *Heart* of Service Provider Networks

Critical Functions for Exceptional Connectivity and Growth



More Broadband Subs - More IP Connectivity

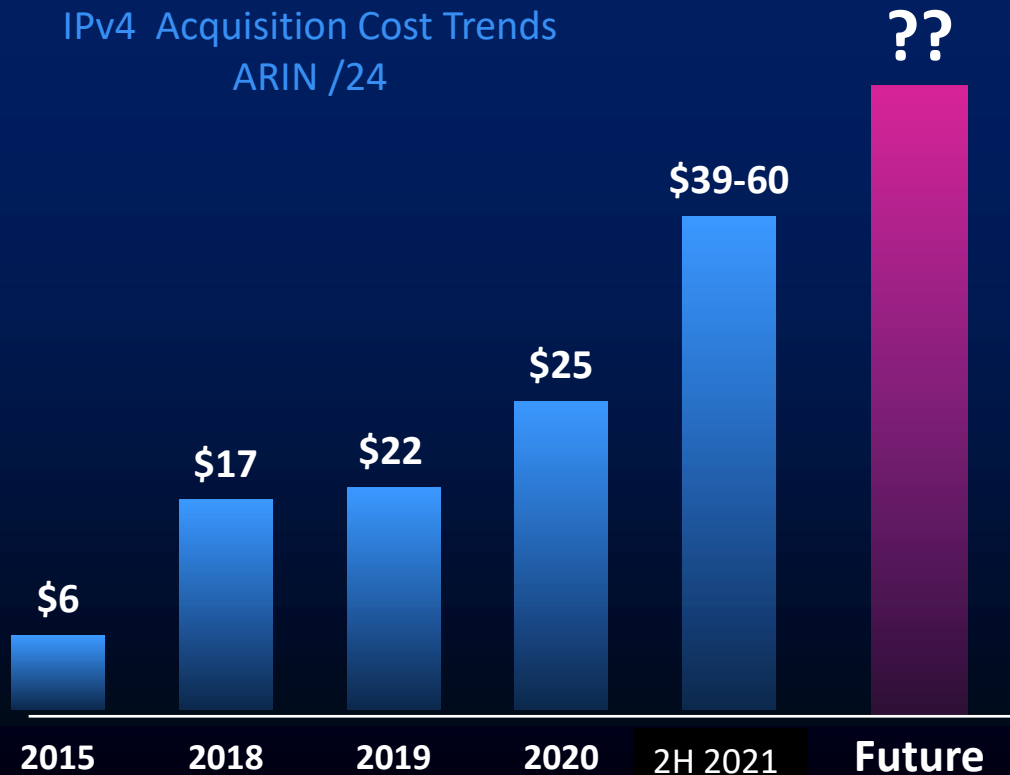
- ➔ Every Internet-connected device needs an IP address
- ➔ IPv6 is not backward compatible with IPv4



IPv4 Demand is High, Supply Uncertain, and Costs Rising

Essential IP Connectivity Decisions to Support Growth in Traffic and Subs

IPv4 Acquisition Cost Trends
ARIN /24



- Rising Acquisition Costs
- Availability of Supply
- Address Quality
- Blacklisted

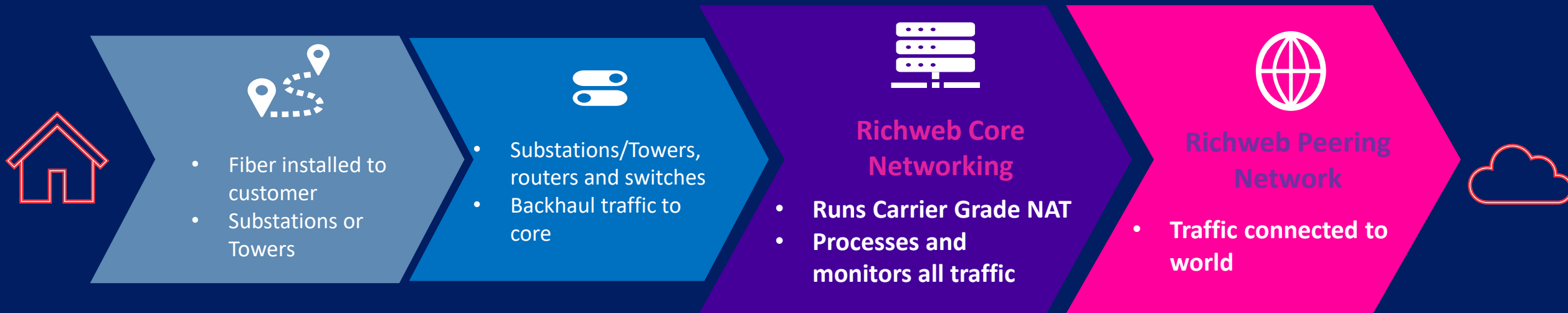
Business Risks

Security Risks

- DDoS on IPv4 Address Pools
- Unprotected IPv6 Users

Case Study: Richweb – Managed CGN Services

Reduces Network Complexity for Regional ISPs and Coops

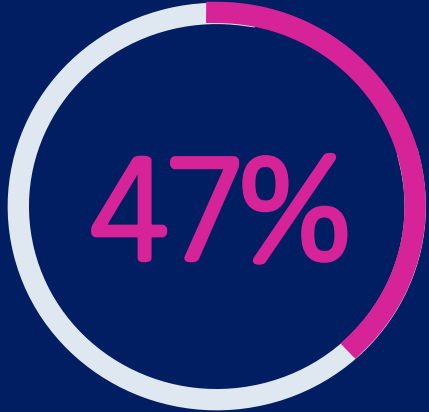
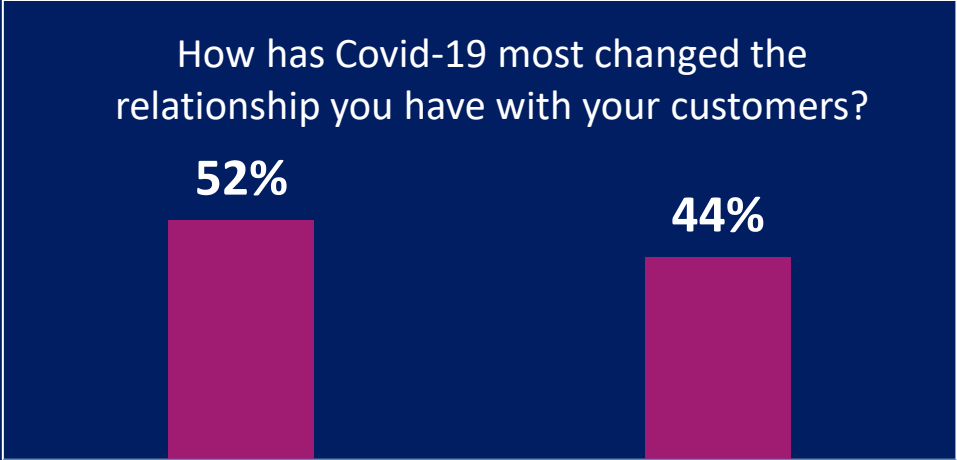


“Richweb provides the infrastructure services, such as routing, network address translation and peering, that electric coops need to deliver broadband to rural communities.”



Mark Lea | CEO and Cofounder, Richweb

Subscriber Expect High Security and Availability



Communications service providers have changed their capital investment plans to invest in security.



“International Communications Survey Report”, sponsored by A10 Networks

Park Associates, May 2020

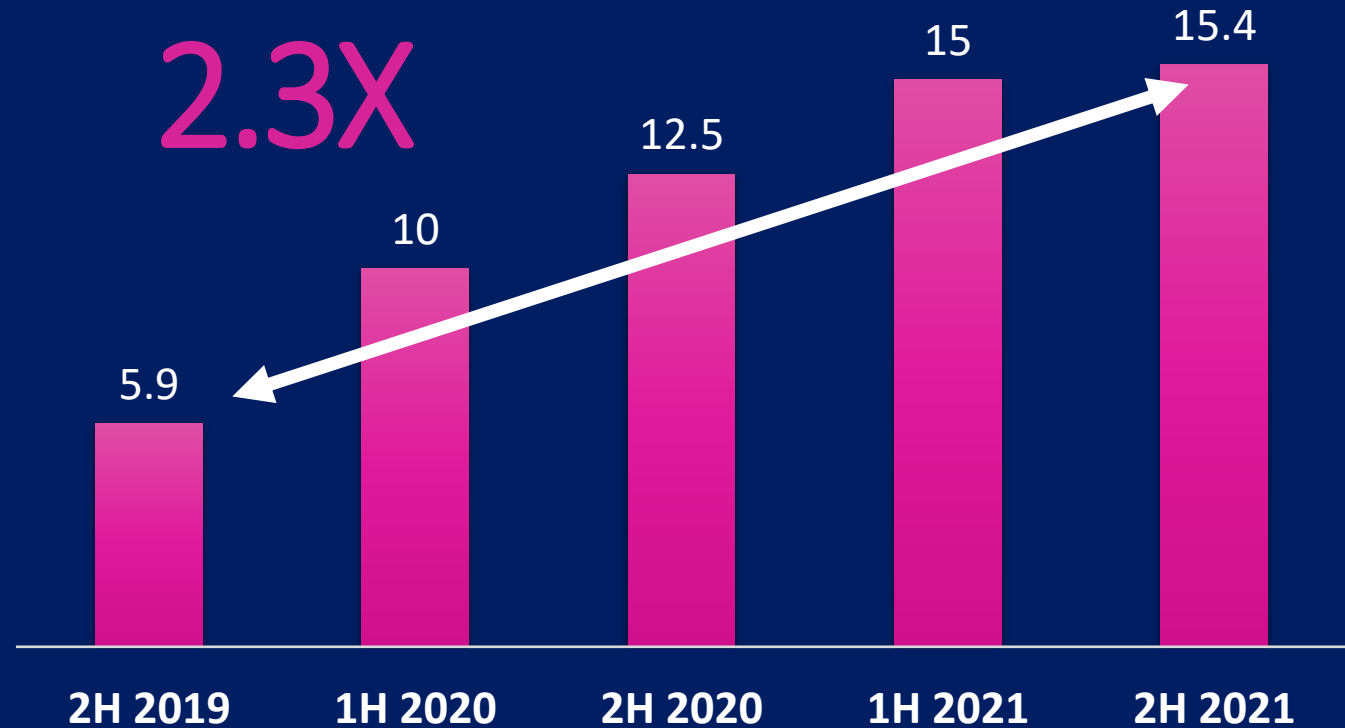
DDoS Threats Keep Growing



15.4M

DDoS Weapons
2H 2021

The Global Growth of DDoS Weapons
(millions)

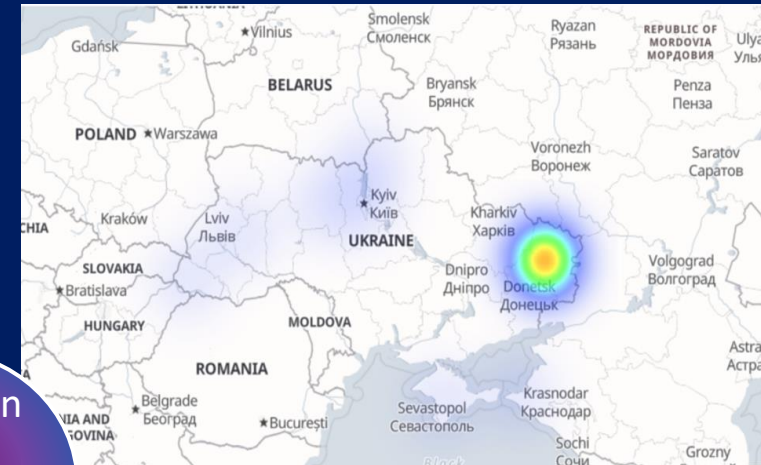
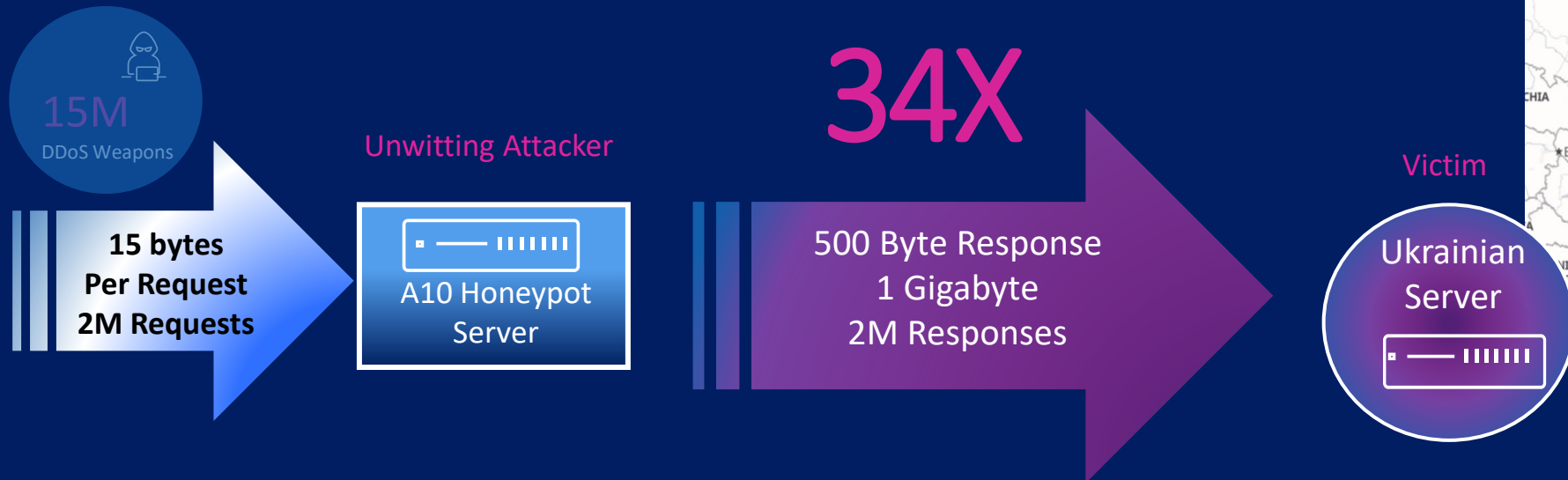


Protection for Victim and Unwitting Attacker

- IT departments outside combatant countries brought into cyber attacks
 - Reflection and amplification
 - Less common ARD protocol and spoofed source address
- System owners must monitor and ensure their systems are not abused



Significant and sustained attacks on Ukrainian government networks



Case Study: Monetize DDoS Protection to Enterprise

- Global Data center and Hosting Provider
 - 43 Points of Presence
 - Dedicated and Cloud Servers and Storage
 - Colocation, Network, CDN, Hosting Cybersecurity
- Tiered DDoS Protection Offer
 - Uses Thunder TPS™
 - Free – 5 Gbps/2.5M PPS
 - Advanced, Customized, Always On
- Results
 - New profitable service
 - 11% reduction in support tickets



“A10’s innovations have a major impact on the business continuity of customers that use Leaseweb global cloud hosting services, as well as on the economics of our DDoS IP Protection services and the workload in our operations teams.”

Bart van der Sloot | Managing Director, Leaseweb Network

Recommendations for Core Innovation

- **Drive Innovation Across Business Models**
 - Funding / Partnership is just the first step
 - Technology – Access and Core network
 - New Services and Customers
- **Prioritize Security Investment**
 - Double down on basic cyber security hygiene
 - Upgrade DDoS protection
 - Recoup costs through security monetization (DDoS-Protection Service)
- **Understand IP Connectivity Options**
 - Estimate IPv4 connectivity costs
 - <https://www.a10networks.com/resources/tools/ipv4-cost-estimator/>
 - Create a plan for IPv4-IPv6 migration



Underserved Communities Want to Leap Ahead

“If you’re not moving forward, you’re falling back.”

— Sam Waterson



[“A Leap Forward”](#), Photo by Katrina Boone

Thank You!

Cable

Tier 1 MSO

Wireless

Regional and rural
wireless carriers

US, Europe, LATAM, Asia

1 Billion+

Subscribers connected



Broadband

Regional and rural
wireline ISPs

US, Europe, LATAM, Asia

5G

Tier 1 mobile carriers
in the US, South Korea,
Japan, Europe, Asia

Institutions

Universities, private 5G,
Large enterprise, financial

270+

Service Provider
Customers

Panel Q&A

Next steps



- Registrants to receive digital divide report free of charge
- Registrants to receive recording, slides and Q&A document shared
- Please forward the recording to colleagues who may have not registered