
AWS
re:Invent
NOV. 28 – DEC. 2, 2022 | LAS VEGAS, NV

TLC201

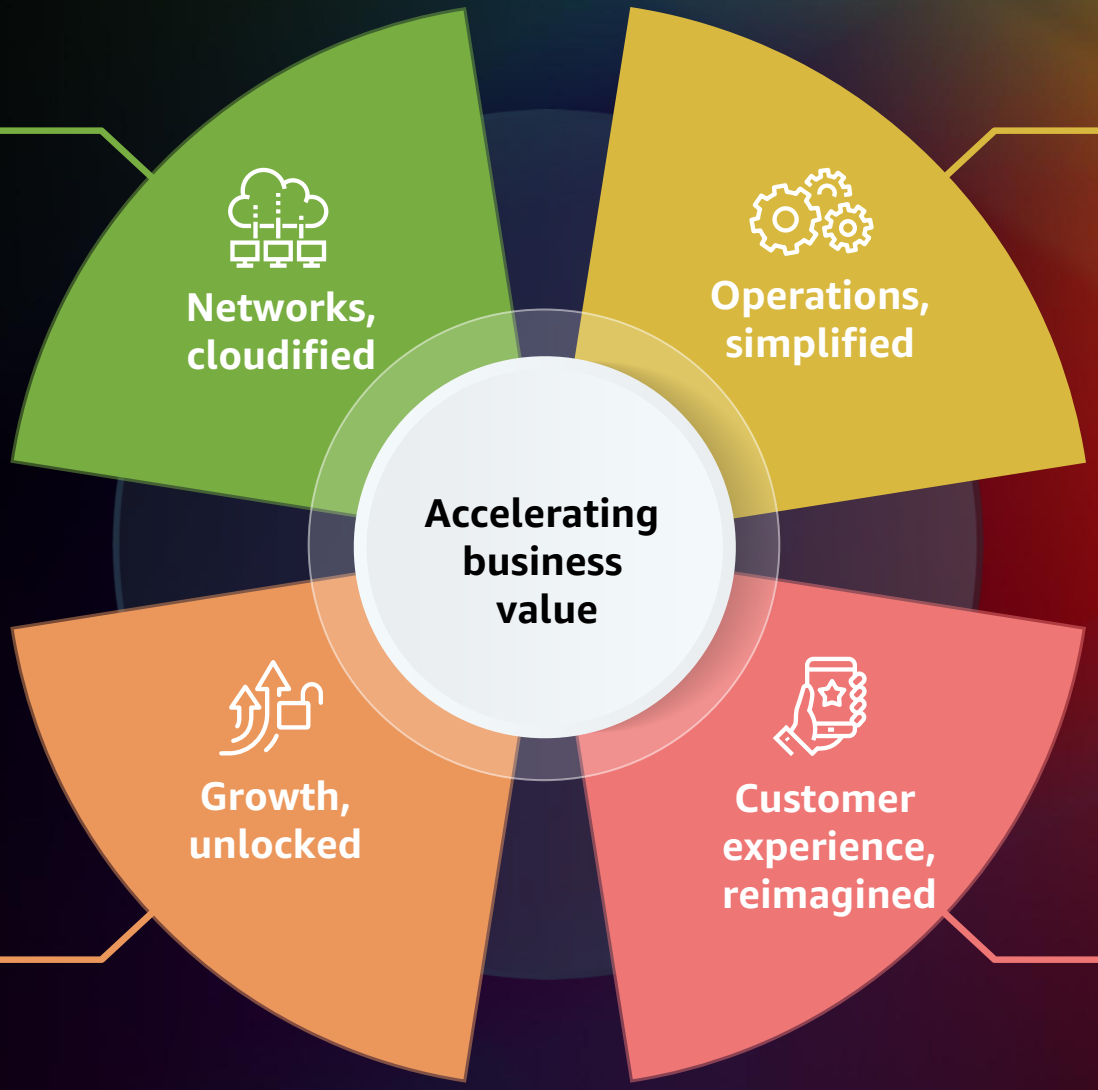
Reinventing communications, together

Adolfo Hernandez
VP Global Telco IBU
AWS

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

AWS re:Invent 2021 recap – AWS Telecom focus areas

Orchestrate a secure, scalable software-driven network



Transform and automate for the future of business

Accelerate innovation to monetize 5G, edge and enterprise transformation

Ignite your data to predict and personalize every interaction with AI/ML

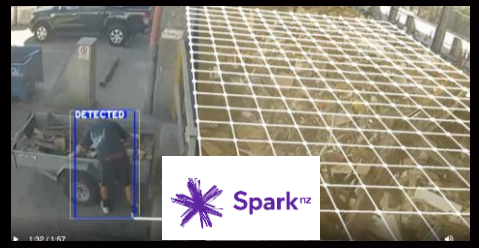
aws

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

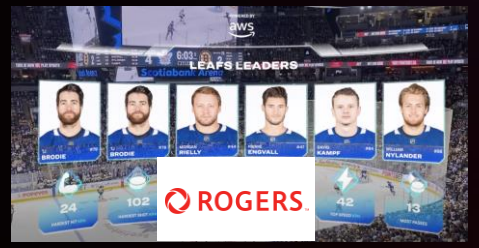
AWS re:Invent 2022 – From vision to reality



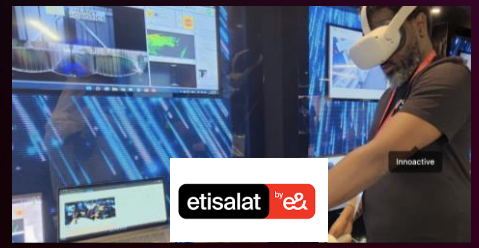
Computer vision as a service



Waste management



Hockey in-venue fan experience



On-site inspections in hazardous environments



DFL games fan experience



Connecting rural areas



Counting cattle with AI and 5G technology



Enhanced network resilience



More than 25% 5G coverage in 18 months



70% power consumption saving



Bundesliga in-stadium 5G during Supercup



Accelerate cloud native transformation



Joint Cloud Camp by Acens



Joint GTM agreement



Streamlined voices, simpler communication

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Trends we see working with Telco & Cloud

1. Accelerating transition from Telco to “Tech-co”
2. Extending the cloud to where the users need it
3. Moving from one-off to as-a-service
4. Evolving from “vanilla” to Telco-specific
5. Introducing new innovative GTM and monetization solutions
6. Helping create a better and more sustainable world

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Accelerating transition from Telco to “Tech-co”

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Accelerating transition from Telco to “Tech-co”

- Leadership mandate to reinvent the business
- Think big and build 360 view of customers
- Recruit, train and retrain “builders”
- Aggressive top-down goals
- Insurgent and re-invent mentality
- Remove undifferentiated work

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Example: Vodafone's journey to Telco as a Service

CREATING A UNIFIED GLOBAL PLATFORM FOR SERVING VODAFONE'S DIGITAL NEEDS GLOBALLY

Building a DevOps organization

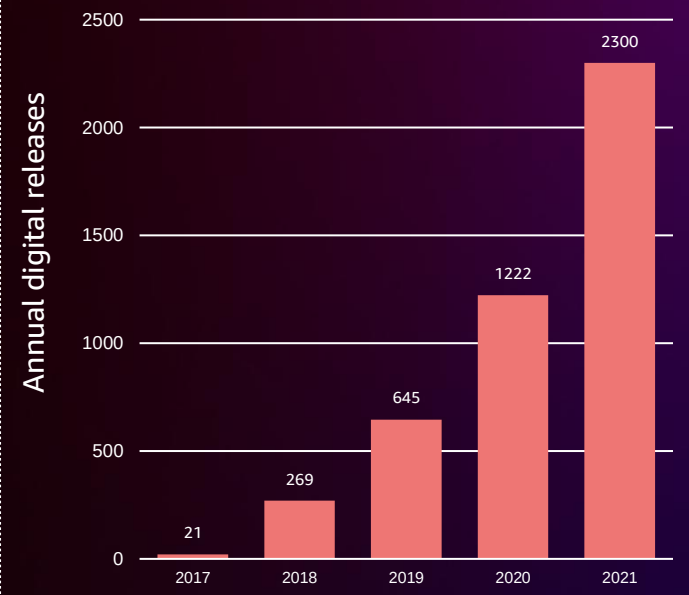
- Reskilling 1000+ developers
- Leveraging DevOps across the organization
- Accelerated delivery and dramatically reduced MTTR

Powered by AWS



Outcomes

Delivering value to customers… FASTER

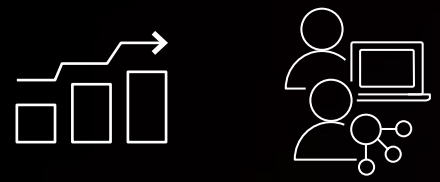


vodafone accenture aws

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Example: Telenet's journey to becoming data-driven

Evolving from leading connectivity to customer centricity by investing in data, digitization and automation



Evolve insights to value impact & profiling to meaningful interactions





Migrate from Cloudera to AWS & Exadata to Snowflake



Outcomes

Telenet journey in numbers

> 1 PB	50 sources	70 projects	100+ use cases	50+ ML Models	150 specialists

telenet

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Extending the cloud to where users need it

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

AWS cloud-to-edge continuum

DELIVERING AWS WHERE YOU NEED IT

AWS regions



On premises

AWS Outposts
AWS Storage Gateway

Metro centers

AWS Local Zones

5G networks

AWS Wavelength

IoT / robotics

AWS IoT Greengrass
AWS RoboMaker

Rugged, Mobile DDIL* edge

AWS Snowball Edge
AWS Snowcone

For most use cases

For low latency, data residency

For local compute, rugged, DDIL* edge

** Denied, disrupted, intermittent, limited*

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Example: LLA's hybrid deployment on the AWS cloud



Stephen Kowal
Chief Enterprise Architect
Liberty Latin America

Outcomes

- Cloud Based, open, scalable, flexible application architecture enables a **quicker start to scale up to production capacity**
- Hybrid approach provides **seamless infrastructure experience between developers, test and production environment**
- Able to implement data integration between the lakes and the hosted application

Liberty
LIBERTY
C&W Networks
+móvil Panama

LIBERTY
LATIN AMERICA

aws

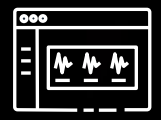
© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.



Moving from one-off to as-a-service

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Bringing the benefits of the cloud to telecom



Agility



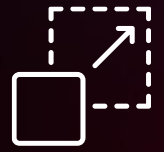
Cost saving



Elasticity



High availability



Scalability



Automation



Security

Apply to network infrastructure



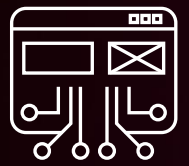
Mobile networks



Private networks



Cable Broadband



Wired WAN



Backbone

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Example: Altice multi-country deployment of Netcracker BSS as a Service



Ari Banerjee
SVP at Netcracker Technology

Outcomes

- **Reduced TCO:** Leverage experience and success across markets
- **Accelerate digital innovation:** Automation and simplification of business processes
- **Improved customer experience:** Convergent bill for all services

Netcracker
An NEC Company

aws

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Telenor and CKH IOD are leveraging networks as a service



Outcomes

- Handling live traffic in 8 public networks, including Tier 1 brands like Telenor and Hutchison Group
- Completed brownfield swap projects of complex core networks
- **Leveraging AWS infrastructure to create consistent deployments globally**

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Evolving from “vanilla” to Telco-specific

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

“**There’s no industry that hasn’t been touched by the cloud…** We’re tailoring services to industry-specific use cases.”

Adam Selipsky

CEO, AWS

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

AWS Cloud adoption journey for telco workloads

Typical Cloud adoption roadmap



OSS

- Domain orchestration
- Slicing functions
- E2E service orchestration
- Low complexity deployment
- Centralized



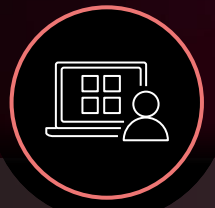
BSS

- Billing, rating, charging
- Low-medium deployment complexity
- Centralized with distributed components
- Data residency impact



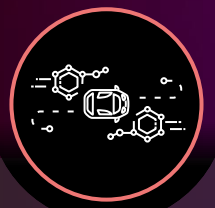
IMS

- Voice & data services
- Medium deployment complexity
- Data residency impact
- Can be centralized but may require edge components



CORE

- 4G & 5G packet core
- Demands high performance infrastructure
- Requires Data Plane elements at the edge



RAN

- Highly distributed
- Complex edge architecture requiring dedicated SKU of AWS Outposts
- DU element requires far-edge deployment

LOW — COMPLEXITY (PERFORMANCE, FEATURES, OPERATIONS) — HIGH

LOW — LATENCY SENSITIVITY — HIGH

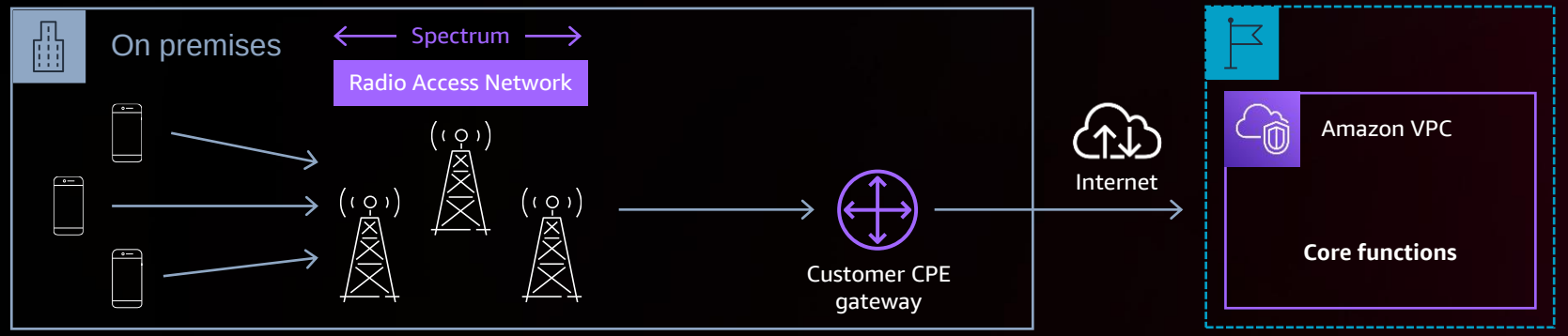
CENTRALIZED — DISTRIBUTION — DISTRIBUTED EDGE

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

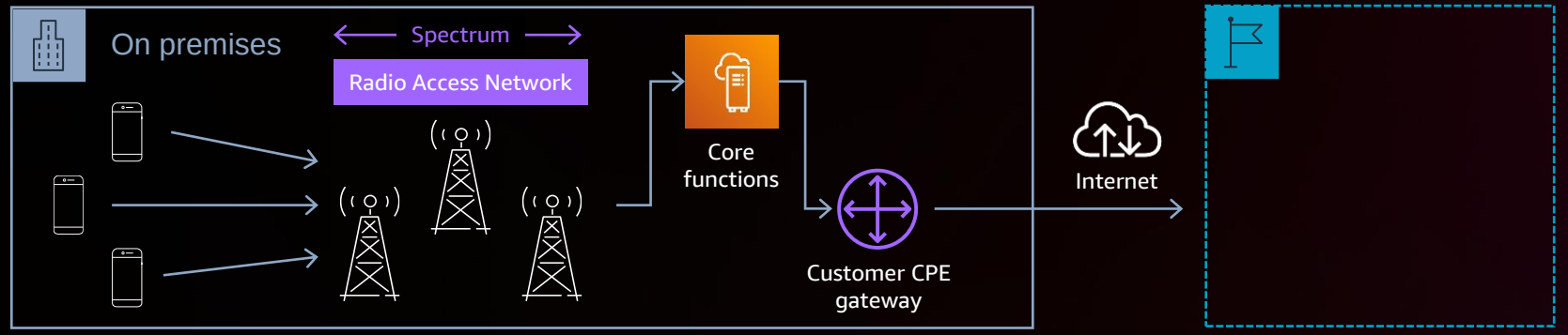
Use case of Telco workloads on the Cloud: Wireless Networks

MORE THAN 200 PRIVATE NETWORKS ARE DEPLOYED ON AWS

Core in AWS region



Core on premises



Benefits

Improved performance
Low-latency, high-throughput network for applications

Extended coverage
Secure, reliable, long-range connection for indoors and outdoors

Granular traffic control
Application-specific traffic policies

Scale to massive devices
Add more devices as your business needs grow

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Federated wireless



Iyad Tarazi
President, CEO, and co-founder
Federated Wireless

Outcomes

- **Accelerated digital transformation** – turnkey private wireless solution with all the advantages of a private network combined with rapid deployment
- **Easy access and scalable** – 100% running on AWS Cloud and available on AWS Marketplace
- **5G Connectivity to next level** - Can leverage cloud-based advantages of shared-spectrum enabled CBRS 5G connectivity to advance cutting edge projects and research

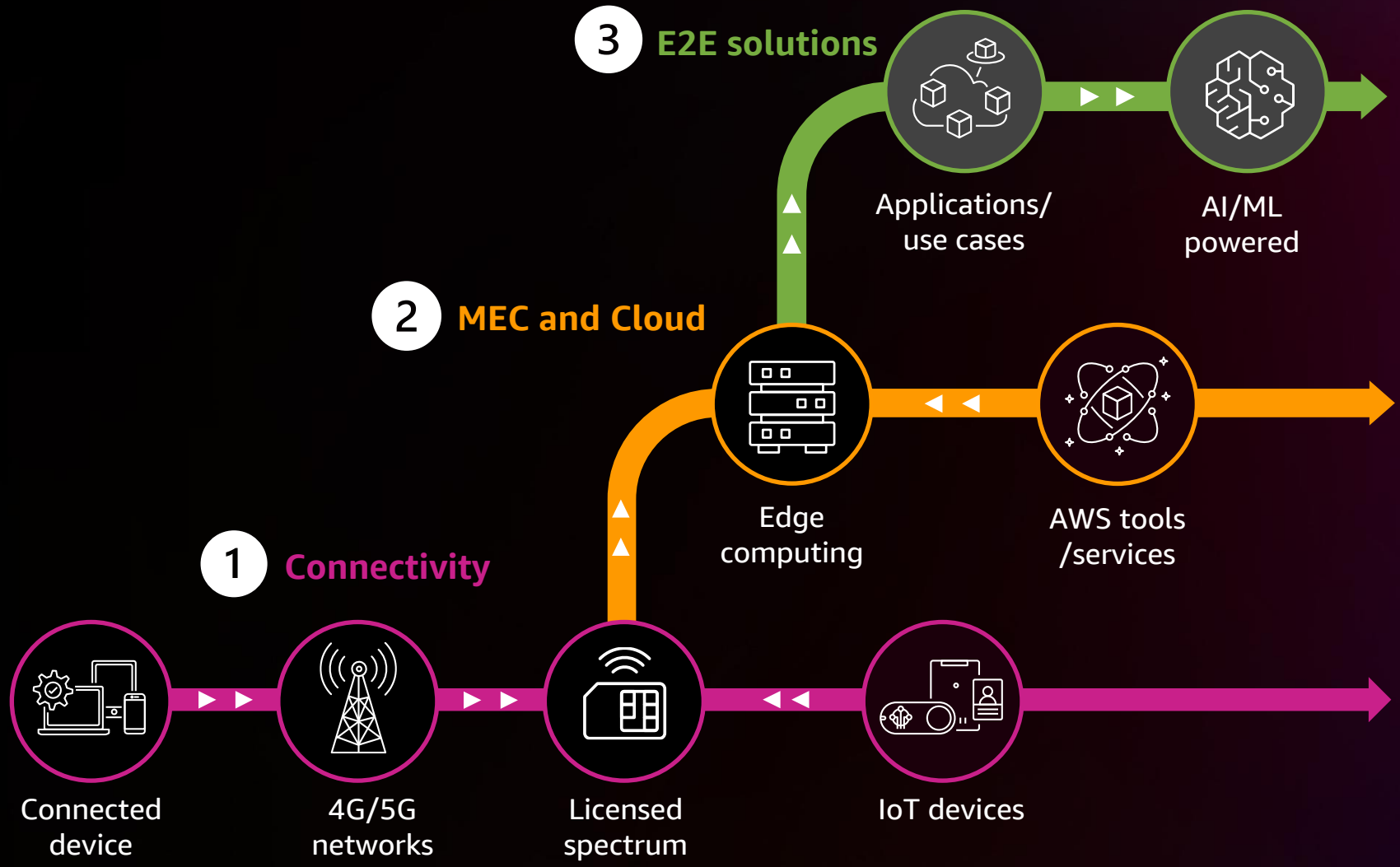
aws
© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.



Introducing new innovative GTM and monetization solutions

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Value generated when Telco and Cloud converge



Managed services

- Airlines, transportation, logistics
- Automotive & manufacturing
- Healthcare
- Energy & Utilities
- Industry 4.0 applications
- Partner Services

MEC & cloud services

- Private networks
- Dedicated MEC
- Public/private MEC
- Seamless connectivity to cloud as part of cloud to edge continuum

Connectivity services

- Dedicated and hybrid networks (4G/5G/NB-IoT)
- 4G/5G Cloud network
- AWS Outposts
- AWS Wavelength
- SD-WAN

aws

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Lumen & Alianza

Reinventing Cloud Communications Platforms



Chris Smith
VP Product Management
Lumen Technologies



Brian Beutler
Founder & CEO
Alianza

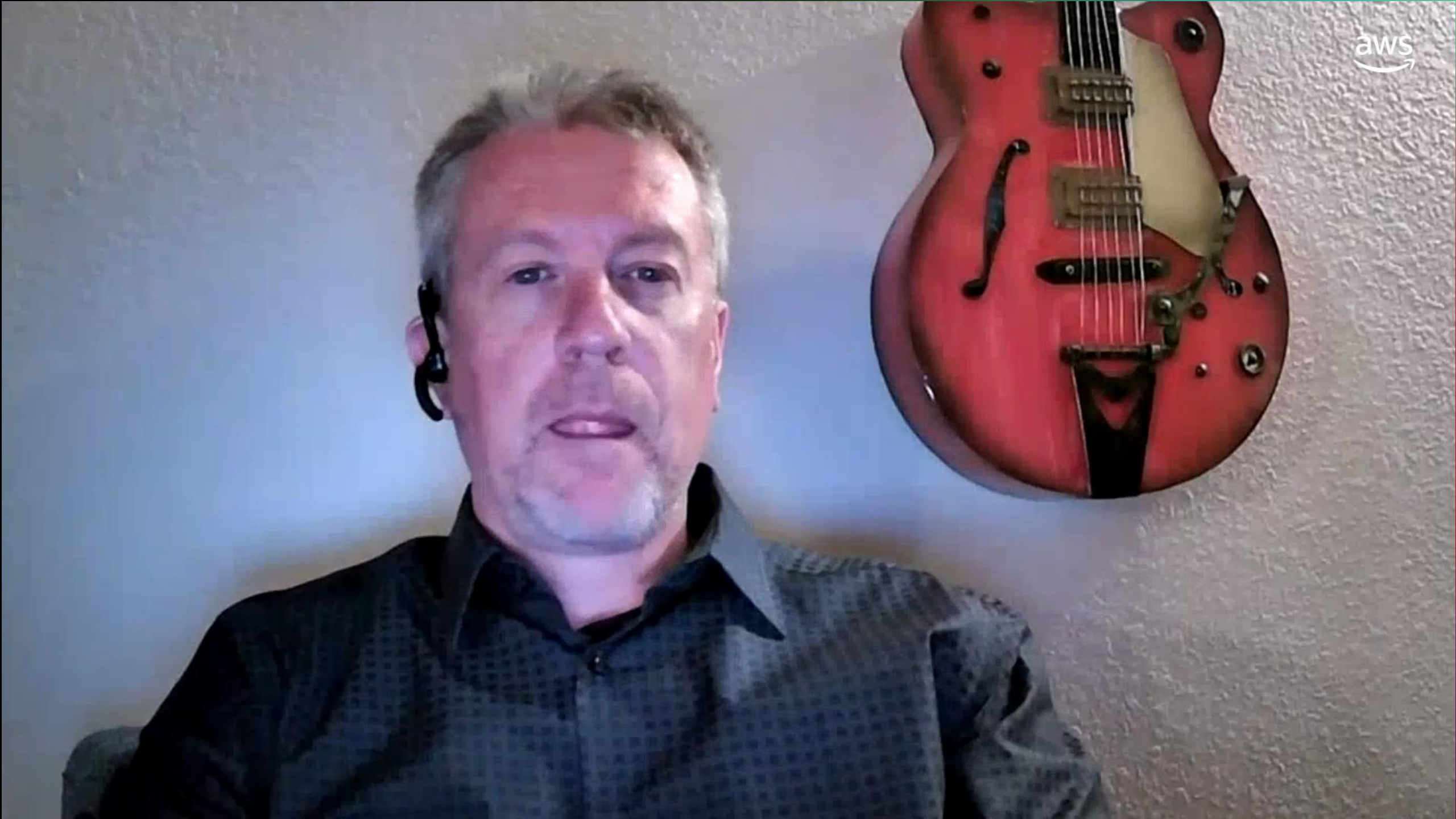
Outcomes

- Improved customer experiences
- Massive operational simplification
- Accelerated revenue growth
- Better TCO

LUMEN® ALIANZA™

aws

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.



The AWS Marketplace benefits for telcos

Launched in 2012, AWS Marketplace has grown to service thousands of vendors and hundreds of thousands of buyers

12,000+ listings

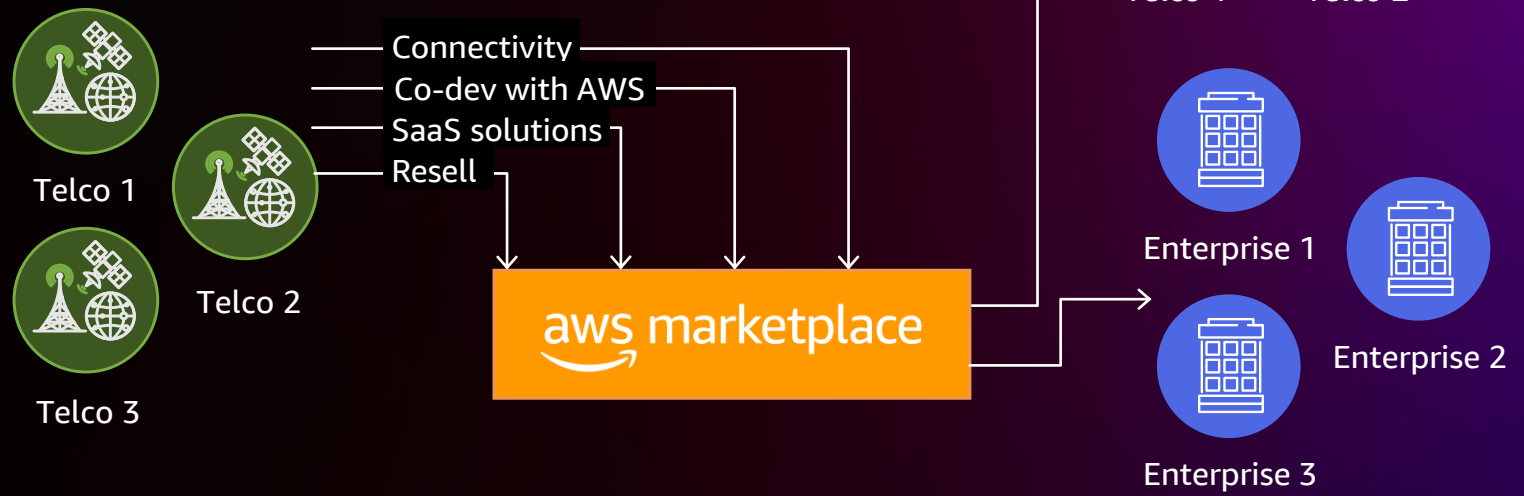
2000+ software vendors

Deployed in 24 regions

325,000+ active customers

50+ categories

2M+ SaaS subscriptions



Accelerate time to contract from 2 months to 2 weeks

Accelerate time to deploy from 7 days to 4 hours

Accelerate contract renewals, from 7 days to 1 day

Enhanced visibility by centralizing software portfolio

cisco amdocs telenor | connexion kx

BlackBerry AT&T Business 1NCE citrix

eseye riverbed JUNIPER NETWORKS fw

aws

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Helping create a better and more sustainable world

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

How we reduce carbon emissions



85% of AWS operations are powered by renewable energy



3.6x more energy efficient than an average enterprise data center in the US, and 5x more than in the EU (451 Research)



Measure AWS-related emissions – with the AWS Carbon Footprint Tool



Better understand the impact of workloads and IT sustainability targets – with AWS Well-Architected Framework

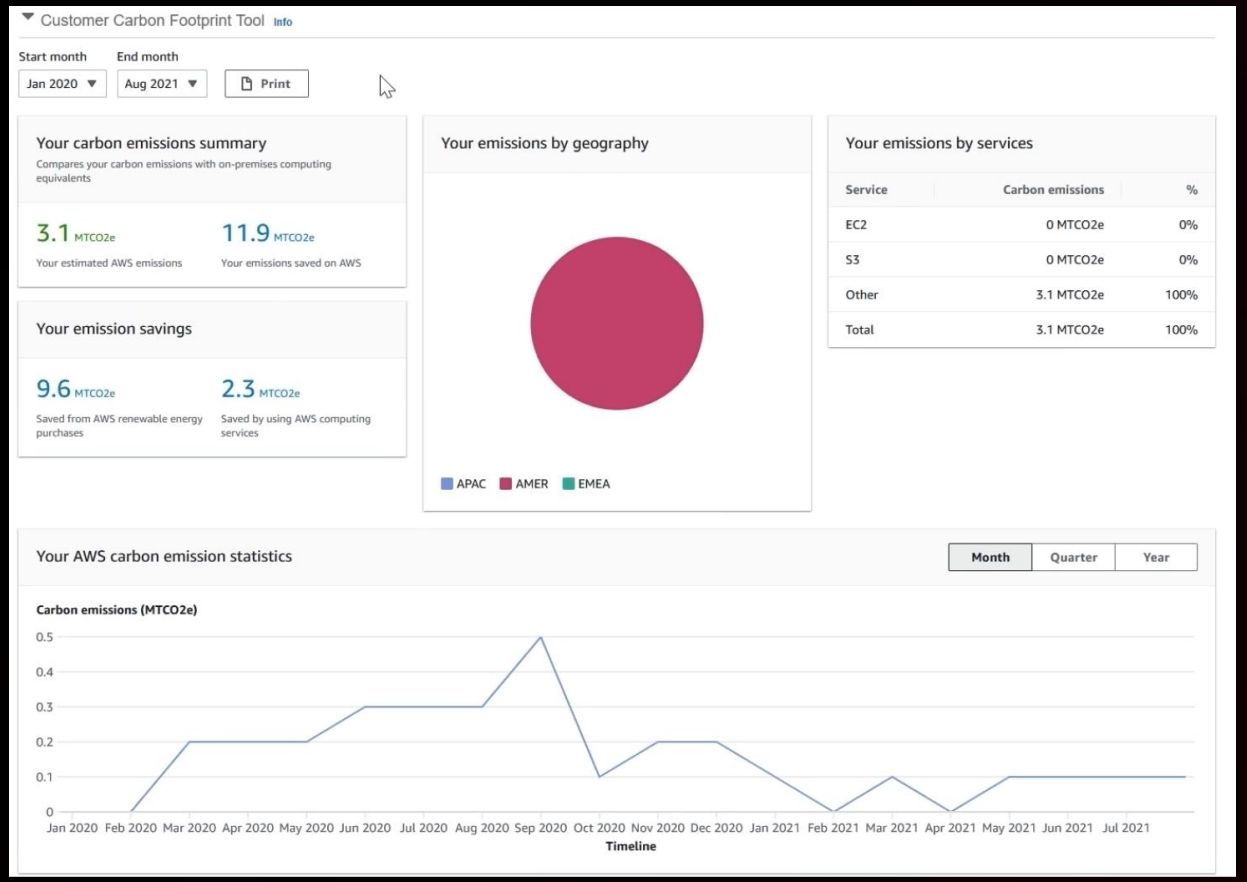


60% less energy used by compute instances built using Arm-based processor Graviton3

aws

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

AWS carbon footprint tool



Calculate carbon emissions generated from your AWS workloads

Understand historical carbon footprint and review changes in emissions over time

Forecast changes as AWS moves forward on its path to 100% renewable power in data centers by 2025

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Optimize for sustainability

Improve power efficiency by switching to Graviton-based instances

Choose serverless when possible

Integrate AWS Instance Scheduler to shut down and terminate when not in use

Use AWS Cost Explorer for right-sizing recommendations of workloads

70% in average cut in energy cost with Graviton2

NTT DOCOMO and NEC Corporation were able to reduce power consumption for NTT DOCOMO's 5G SA Core by an average of 70% using AWS Graviton2

NTT docomo

NEC



aws

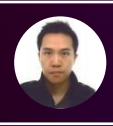
© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Want to learn more?

See our AWS Telecom customer references, use cases, solutions, and services in action…

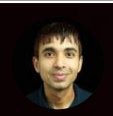
© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

AWS re:Invent 2022 – key telco sessions

TLC201	Reinventing communications, together	Wed 8.30-9.30am		Adolfo Hernandez VP Global Telco BU
TLC304	Coinventing connectivity with Telcos	Mon 2.30-3.30am		Ishwar Parulkar CTO, Telco and Edge, AWS  Sameer Vuyyuru Director, Telco BD, AWS
HYB206	AWS: A great way to run 5G networks	Tue 2.45-3.45pm		Amir Rao Director, AWS  Mark Düsener, EVP Mobile Network & B2B Telco, Swisscom  Nits Jeganathan, Sr. Product Manager, AWS
TLC305	Reimagining the home experience with cloud-native 5G powered by AWS	Thur 2-3pm		Robin Harwani Head of Industry Solutions, AWS
TLC303	Verizon Connect transformation through their journey to the cloud	Wed 4-5pm		Craig Allen, Chief Architect, Verizon Connect  Fernando Gamero, SA, AWS
TLC308-R	Bringing 5G edge cloud deployment flexibility to New Zealand	Wed 8.30-9.30am		Nilay Rathod, Tribe Lead, Spark New Zealand Ltd  Owen Law, Senior SA, AWS  Ratan Kumar, Senior SA, AWS
TLC306	DISH's 5G wireless deployment on AWS: From Region to Edge	Wed 1.45-2.45pm		Sundeep Goswami, 5G Principal Solutions Consultant, Dish Wireless Scott Stimson, Principal SA, AWS
TLC202	Telco as a service: Future of digital with AWS and Vodafone	Mon 1-2pm		Ben Connolly, Head of Cloud Engineering, Vodafone  Maynard Williams, MD, Accenture  Rui Frazao, SA Lead, AWS
TLC307	Telenet's journey to become a next-generation, data-driven organization	Thur 1.15-2.15pm		Pieter-Jan Verbruggen, Product Owner, Telenet  Praveen Sinha, SA, AWS

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

AWS re:Invent 2022 – key telco sessions

TLC301	**Building a hybrid Telco Lake solution**	Wed 10-11am	 Ross McWalter, Head of Telco Applications, AWS  Subhash Talluri, Solutions Architect, AWS  Ajay Ravindranathan, Lead Architect, Telco Data Lakes, AWS	 Raghvendra Singh, Sr Customer Delivery Architect, AWS  Guy Ben Baruch, Principal Solution Architect, AWS
TLC302	**Network functions in AWS Local Zones for edge compute**	Wed 6.15-8.15pm	 Upendra Shevade, Principal Engineer, AWS	 Ammar Latif, Principal Solutions Architect, AWS

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

AWS Industry Area

Sport



Bundesliga free kick challenge

Media & entertainment



Live broadcast of the Bundesliga over private 5G

Automotive



Autonomous driving

Industrial



Industrial computer vision and predictive maintenance

Energy



Energy systems of the future

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Telecom use cases in action



Connected customer journey



Simplifying 5G monetization



Reimagining home experience



Worker safety and productivity over private 5G



AR/VR over public MEC



Private network in a box

Powered by AWS private 5G

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Thank you!



Please complete the session survey in the **mobile app**

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.