Stan Schneider
RTI CEO

stan@rti.com

https://www.linkedin.com/in/stan-schneider-102466

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Capture the Prize

Stan Schneider, PhD

RTI CEO

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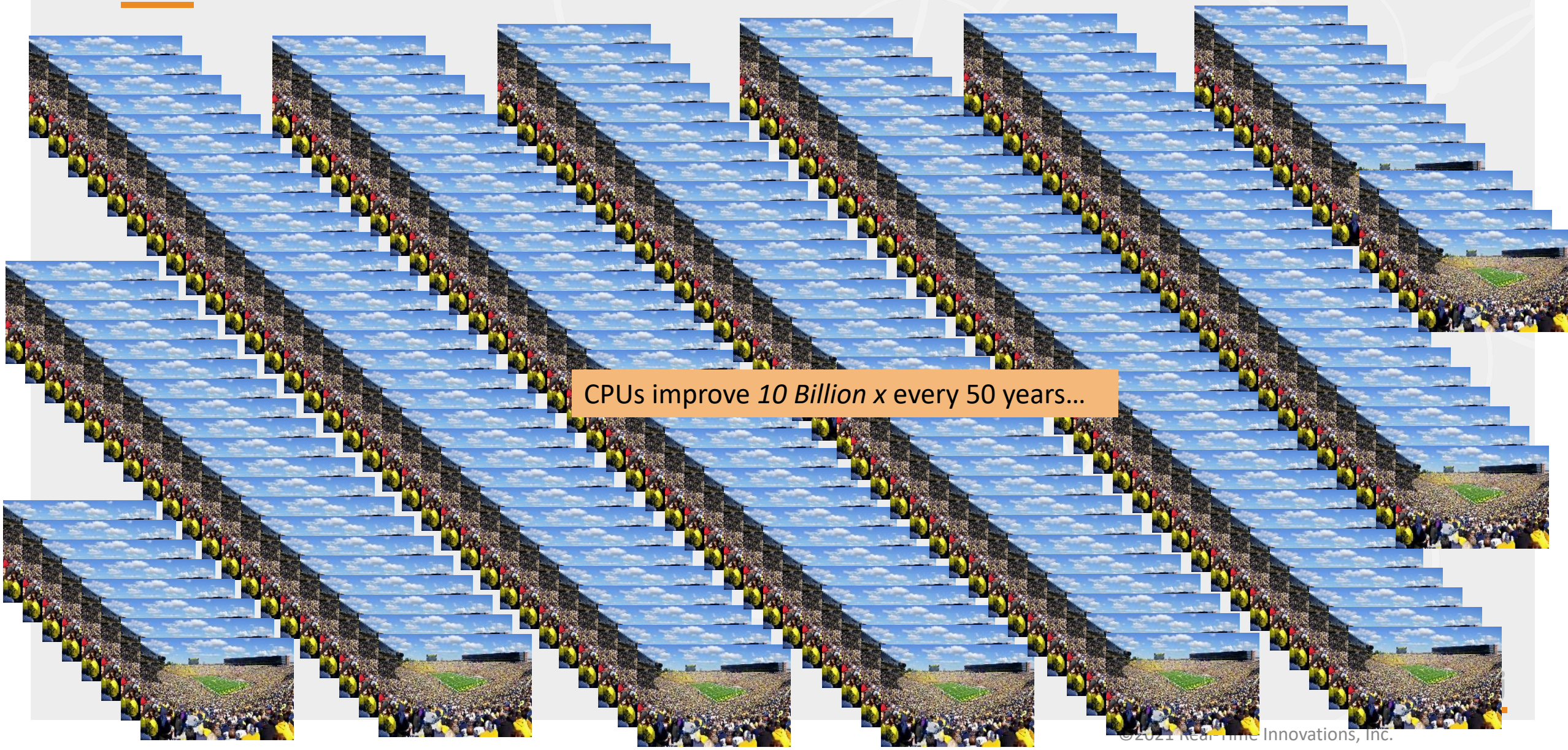
In 25 more years…CPUs will be another *100,000x* better



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AI Tomorrow

- Everything will be smart
- Everything will be connected
- *Everything will need software architecture*

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One software architecture will lead the change to intelligent distributed infrastructure

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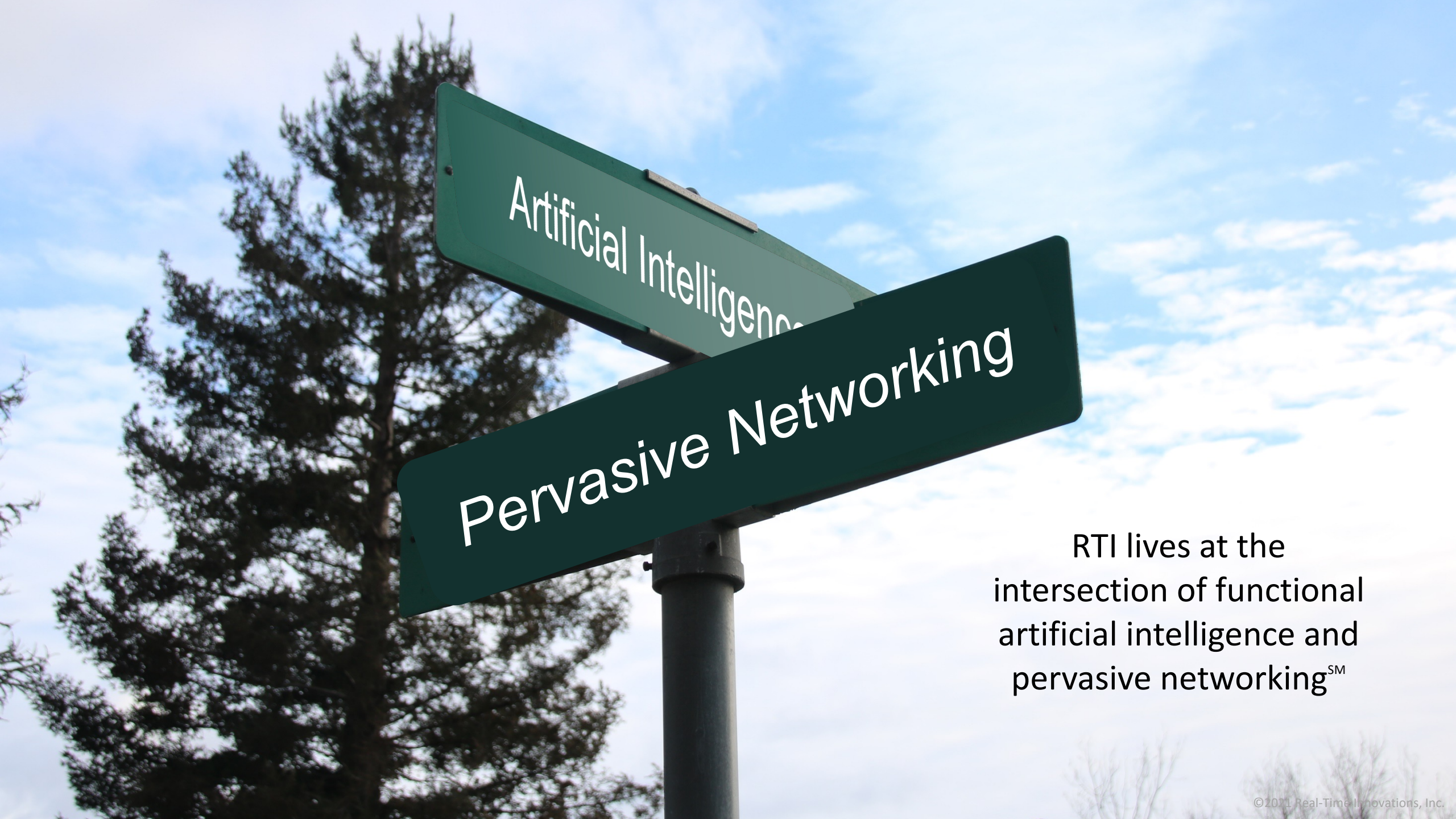

RTI lives at the intersection of functional artificial intelligence and pervasive networking℠

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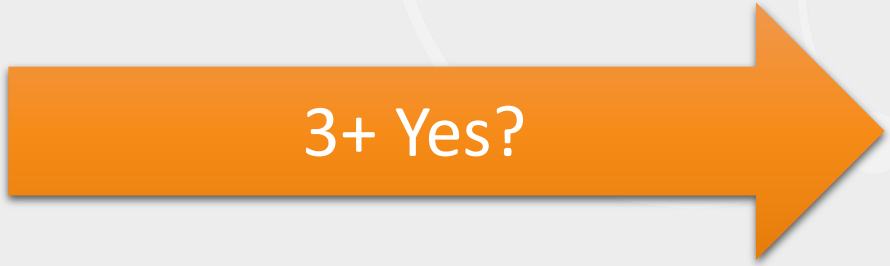
You Need RTI if You Face These Problems

- Are there severe consequences of failure for one minute?
- Have you said “millisecond” in the last 2 weeks?
- Do you have more than 10 software engineers?
- Does your data have many destinations?
- Are you building a smart real-world system?



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Can RTI Lead this Transition?

#1 in autonomy

Real-Time Innovations (RTI) is the largest software framework company for autonomous systems. RTI Connext is the world's leading architecture for developing intelligent distributed systems. Uniquely, Connext shares data directly, connecting AI algorithms to real-time networks of devices to build autonomous systems.

#1 in intelligent distributed systems

Unique value proposition for autonomy

RTI is the best in the world at ensuring our customers' success in deploying production systems. With over 1,500 designs, RTI software runs over 250 autonomous vehicle programs, controls the largest power plants in North America, coordinates combat management on U.S. Navy ships, drives a new generation of medical robotics, enables flying cars, and provides 24/7 intelligence for hospital and emergency medicine. RTI runs a smarter world.

#1 in deployment

RTI is the leading vendor of products compliant with the Object Management Group® (OMG®) Data Distribution Service™ (DDS) standard. RTI is privately held and headquartered in Sunnyvale, California with regional offices in Colorado, Spain, and Singapore.

Contribution to a better world

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RTI's Why: To Enable Smart Machines

By enabling a new generation of intelligent distributed systems, RTI boldly seeks to transform entire industries.

We particularly seek applications that promote a sustainable, safe, green, and healthy planet.

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Capture *The Prize*

RTI will dominate the architecture software for intelligent distributed machines across verticals

RTI Runs a Smarter World

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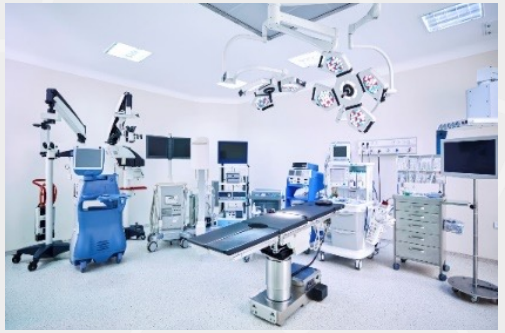
Autonomy Changes *Everything*

- Transportation
  - Autonomous vehicles
  - Rail & mass transit
  - Traffic control (ground & air)
  - Urban Air Mobility
- Energy
  - Renewable generation (hydro, wind, solar)
  - DER integration (future grid)
  - Automated drilling & production
- Medical
  - Intelligent connected medical devices
  - Imaging & treatment systems
  - Surgical and diagnostic robotics
- Defense
  - Naval systems
  - Open architecture integration
  - Radar/antimissile/air defense
  - Avionics & UAS
  - Ground vehicles
- Simulation and training



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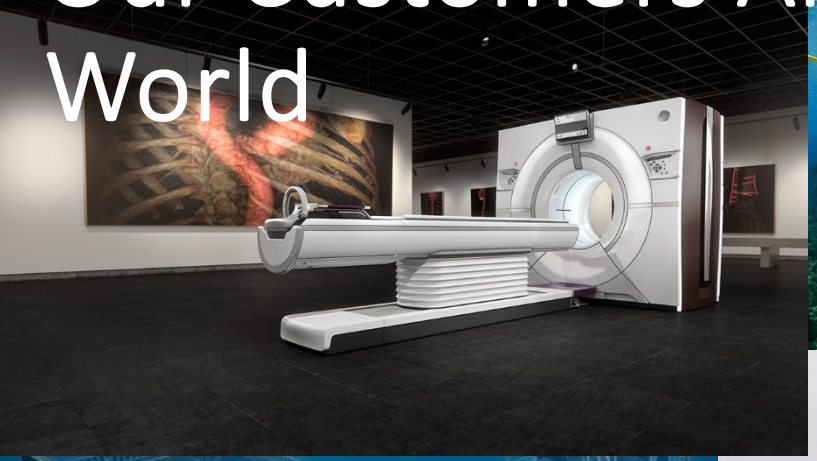
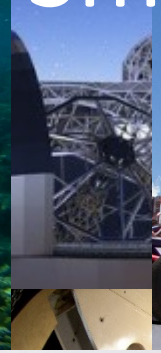
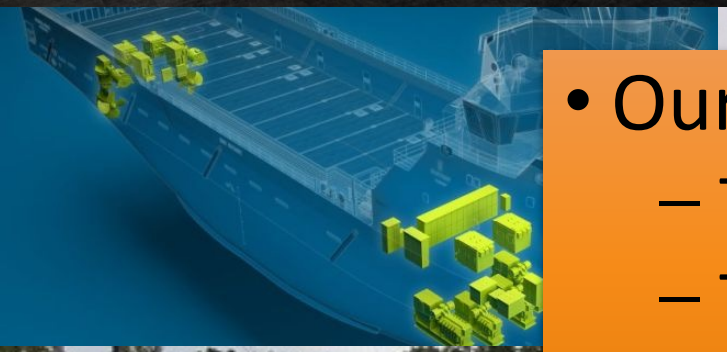
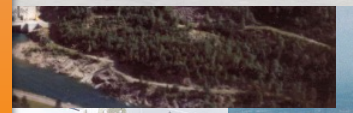
Our Customers Are Building a Smarter World

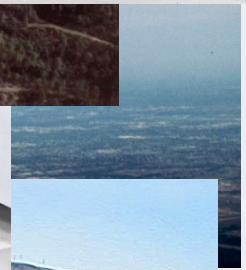


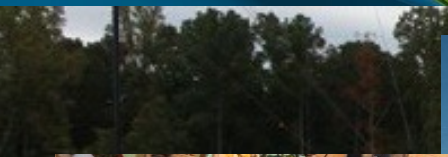




- Our customers have 3 things in common:
  - They are doing something new
  - They are doing something hard
  - They are *scared*







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- Real-world autonomy is *hard*
  - Systems are *big and complex*
  - Must be *fast & reliable*, even if net is not
  - Things *change*
  - *Insight* is critical
  - Autonomous systems *need* remote help
- Connections *must* work
  - Secure
  - Real-time
  - Reliable (when needed)

Autonomy is too hard.
How can we make it work?

The Real Problem? *Corner Cases*

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You can’t build a culture in pieces, any more than you can water a parking lot and call it a rainforest. Like our slogan, it has to *Work as One*.

RTI Sells Trust

RTI's Pandemic

RTI excels at distributed software. And distributed teams…

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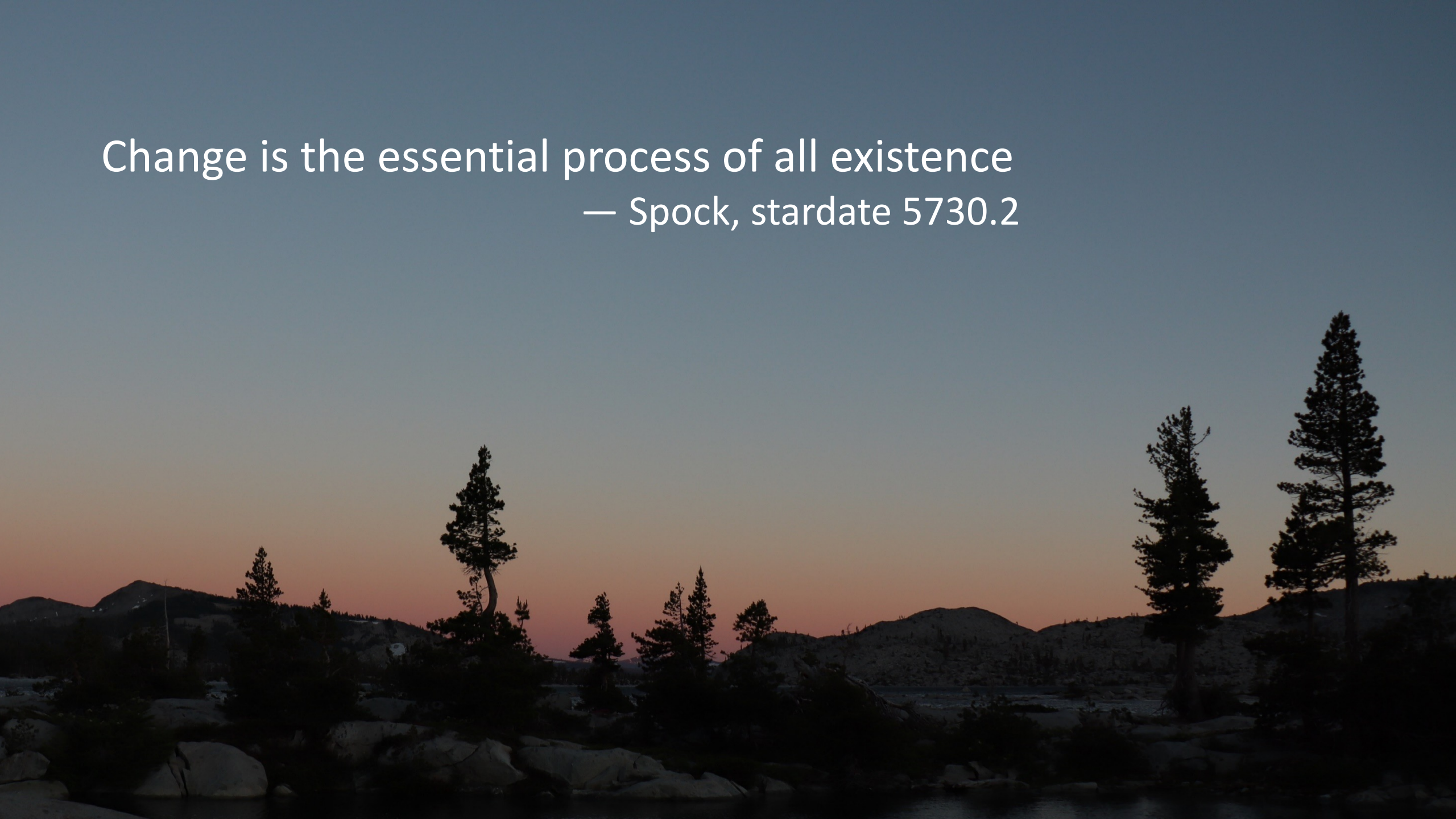
Change is the essential process of all existence
— Spock, stardate 5730.2

Realize What Drives Success

It’s not finance, not strategy, not technology. Teamwork remains the ultimate competitive advantage, both because it is so powerful and so rare.

If you could get all the people in an organization rowing in the same direction, you could dominate any industry, in any market, against any competition, at any time.

Patrick Lencioni

(tl;dr: Teamwork)

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We Did Well Distributed...

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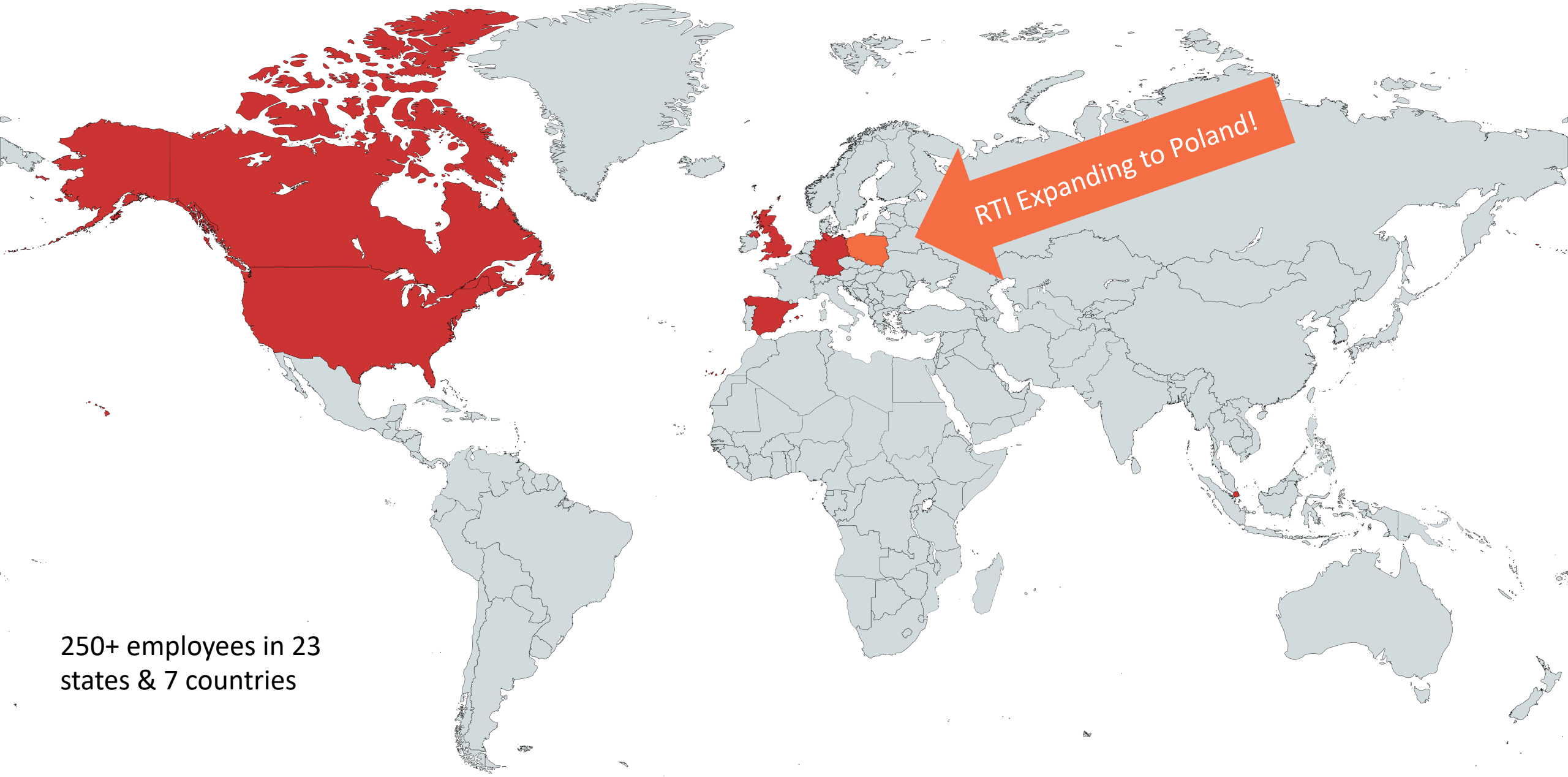

250+ employees in 23 states & 7 countries

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RTI HQ, Sunnyvale, CA

- Heart of Silicon Valley
- 35k square feet
- Conference facility for 250+

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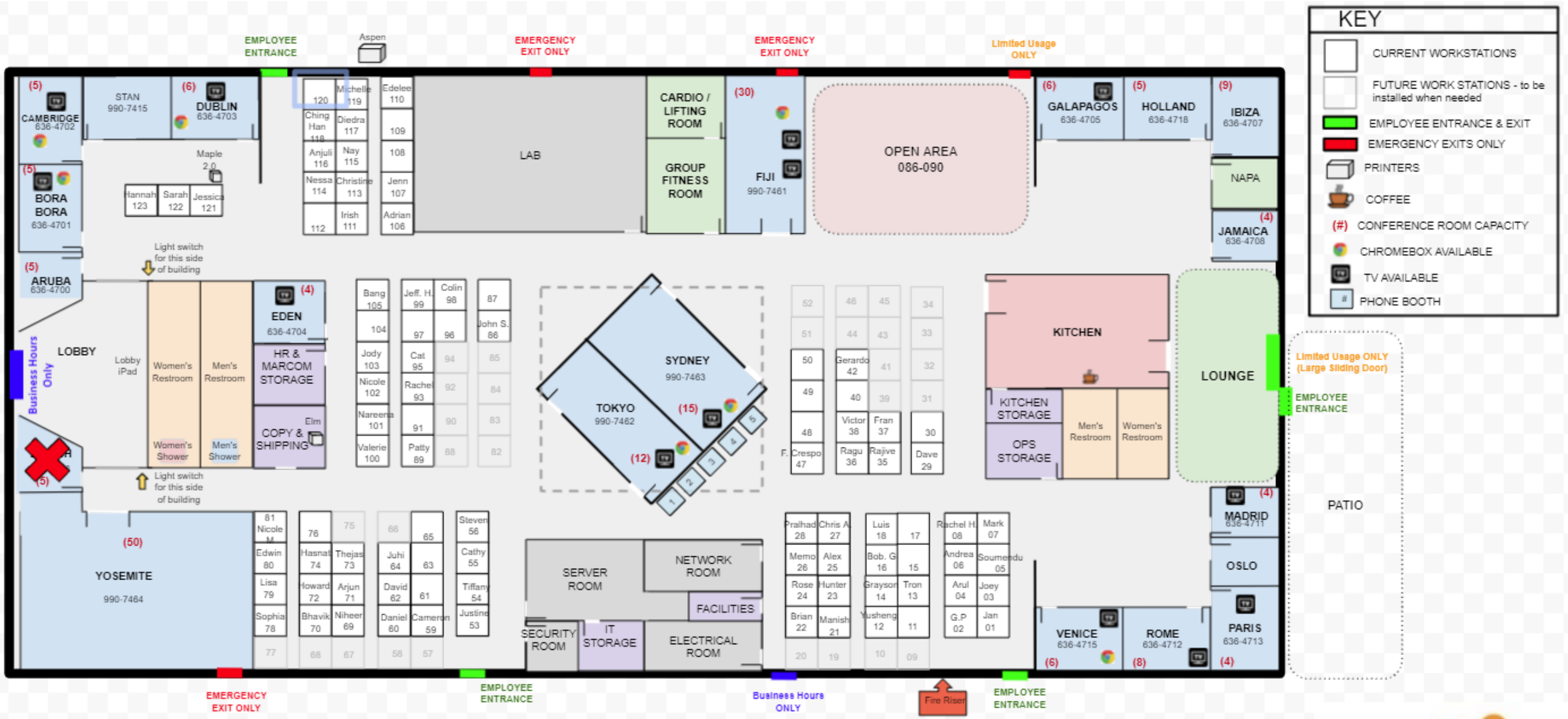

NOT TO SCALE

232 East Java Drive
Sunnyvale, CA 94089

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Plenty of Room for Fun!

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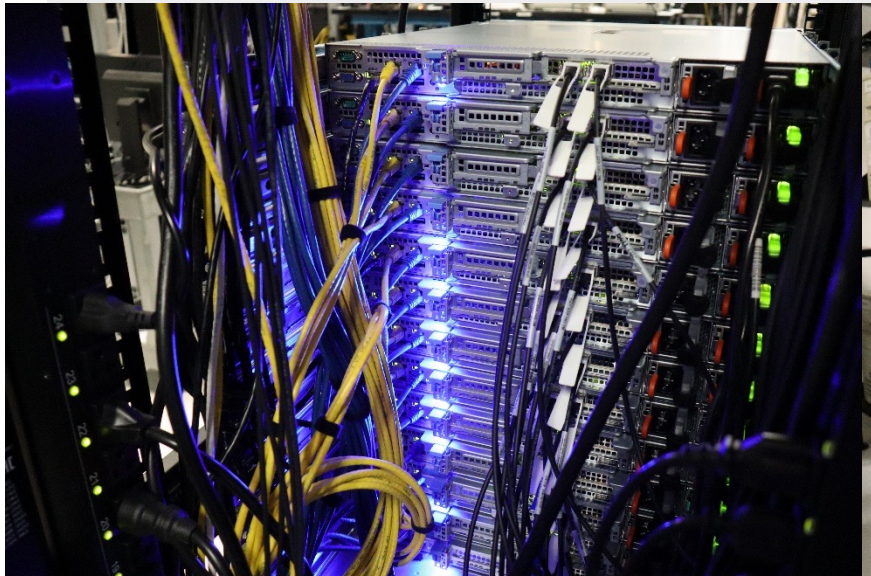
World's Largest IIoT Test Lab

- 51 equipment racks + 6 tables
  - 1200+ enterprise-class cores; many embedded cores
  - 1.25 PetaBytes of storage
  - 200+ embedded boards
  - Runs 1000s of VMs
  - 25+ operating systems
  - 12 network types
  - Satellite lab in Spain
- Full remote operation
- Deep software stacks
  - Docker, Kubernetes, Linux, MySQL, Postgres, MariaDB, SFS, NTP, TripleO, OpenStack, Nova, Zabbix, Rundeck, Ansible, phpIPAM, ArchDB, Snipe-IT, Bamboo, OpenLava, Booked, GlusterFS,Ceph, Jenkins, Bitbucket, Artifactory



RTI's Extensive Testing

- Configuration management, third-part sw mgt, and pull requests (Bitbucket, Artifactory)
- Dynamic analysis (Valgrind, with/without buffer pools)
- Static analysis (cppcheck, Coverity)
- Compiler warning detection (MSVC, clang, gcc)
- API Unit testing (RTI)
- Distributed Feature testing (bespoke feature tests, customer use cases and Qos configs)
- Interoperability testing (feature, product, vendor, language)
- Install testing (OOB experience, examples, documentation, minimal functionality)
- Performance testing (custom, Perftest), Memory Profiling (Memtest)
- Endurance testing (RTI)
- Fuzz testing (AFL, RTI)
- Continuous Integration (Bamboo, Jenkins) with Fast Build, Nightly, and Weekly build and tests on the full set of supported platforms (PAM).

Denver Office

- 3900 E Mexico Avenue
  - 4th Floor
  - 9,667 SF
  - 56 Workstations
  - 12 Conference Rooms
  - 4 Phone Booths
  - Large Kitchen
- Just opened…already >20 people

EXIT
1rti

Spain Office Open!

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Viva España!

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RTI Singapore

- APAC Headquarters
- Launch point for APAC expansion
- Sales, Services

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RTI Poland: Certification Expertise

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What's Next?

RTI will Lead the Future of Work

The Office as

A Place to Work
with
Incidental Interaction

The Office as

A Place to *Interact*
with
Incidental Work

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RTI’s Work Future

- Live where you like; work when and where you like
- Team Weeks: Rather than “days/week” for only locals…“weeks/year” for all
- Exciting and lively interaction at attractive destinations!

Ex

Great Place To Work.®

Certified

MAR 2021-MAR 2022

USA

™

Tea

Great Place To Work.®

Certified

MAR 2021–MAR 2022

ESP

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RTI's Pandemic: Pivot as a Strategy (PaaS)

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Here to Serve You

What is RTI's Product?

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A plane *has* engines

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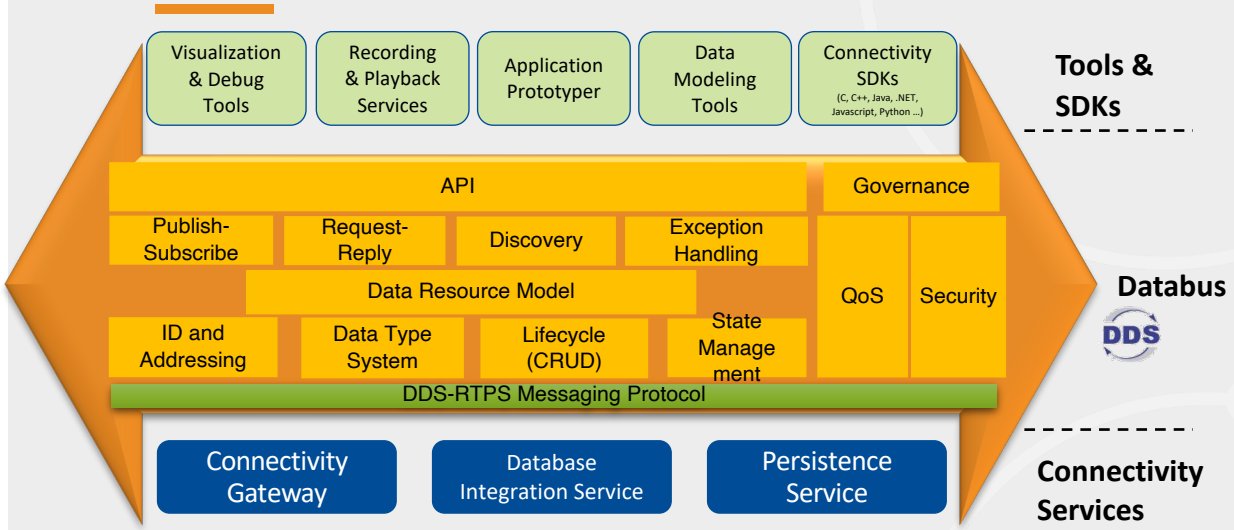
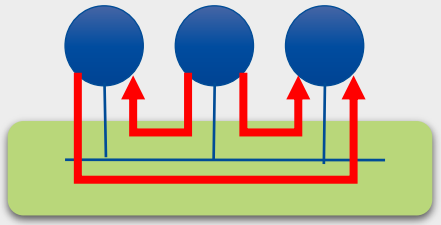
A runner *has* legs

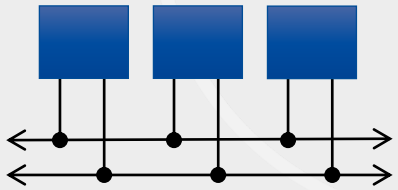
RTI Connext *has* a DDS



Databus



Security



Safety Cert

Tools

Admin Console

Monitor

Code Generator

System Designer

Shapes Demo

Wireshark

Micro App Generator

DDS Spy

Heap Analyzer

Launcher

LabVIEW Toolkit

Services

Routing Service

Recording Service

Persistence Service

Queuing Service

Web Integration Service

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RTI is Far More than DDS

- RTI Connext *has a* DDS. It is not *a* DDS.
  - We don't really compete with FastDDS, Cyclone, OpenDDS
- DDS is *only 10%* of what we do
  - Tech: tools, IS, platforms, cert
  - Quality: testing, lab, performance
  - Local: support, services, sales
  - Culture: trustworthy, responsive, excellent

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Introducing CONNEXT 6.1

The First Software Framework for Widely Distributed Autonomous Systems

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Bigger

Connect Widely Distributed Systems

Real-Time WAN | Discovery | Data Compression

Broader

Unite More Applications

Platforms | Languages

Better

Increase Developer Productivity

Observability | Enhanced Documentation | Configuration

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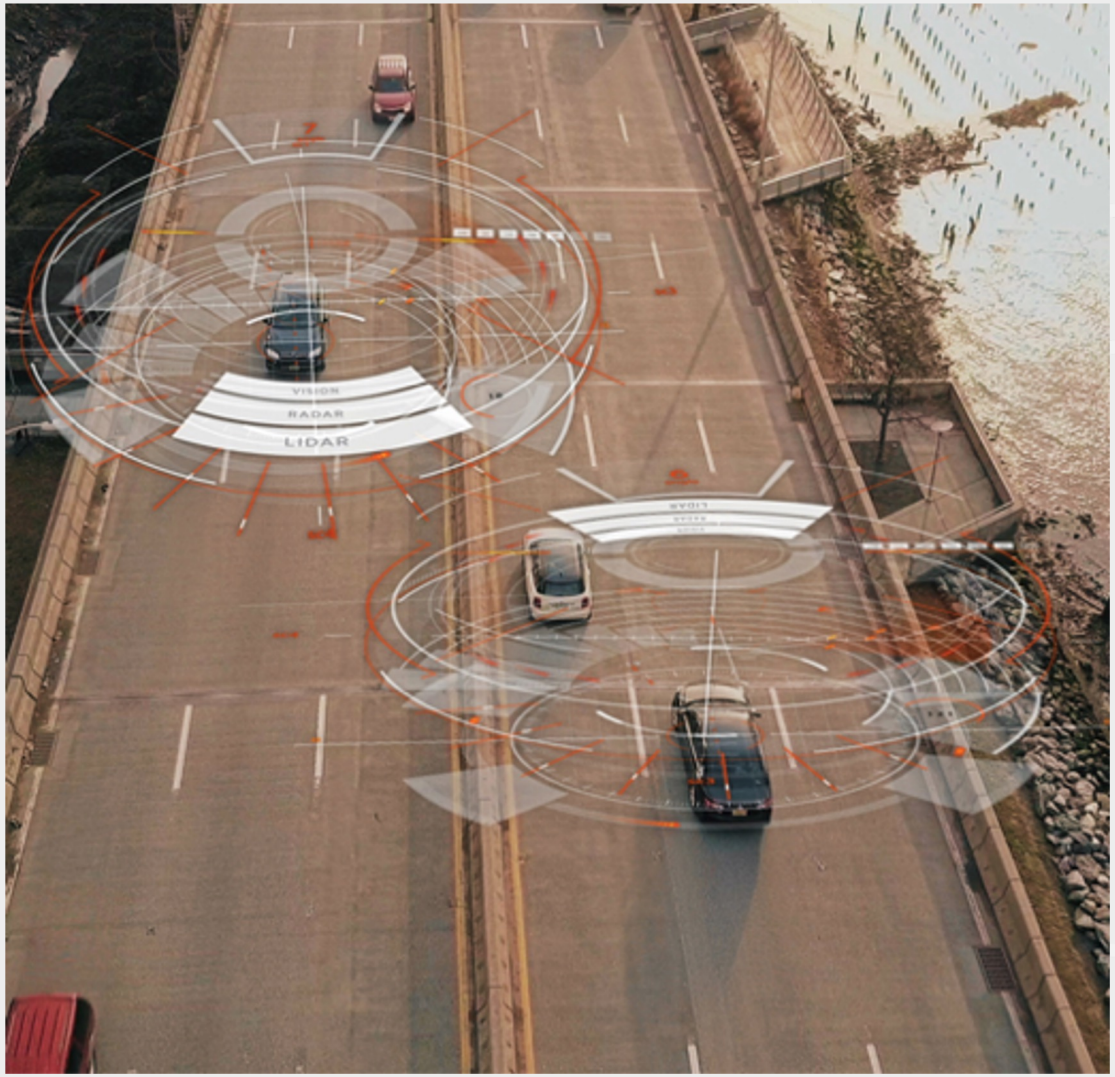
Introducing *Connext Anywhere*



WAN Connectivity

to remote endpoints

that is seamless

scalable and

secure

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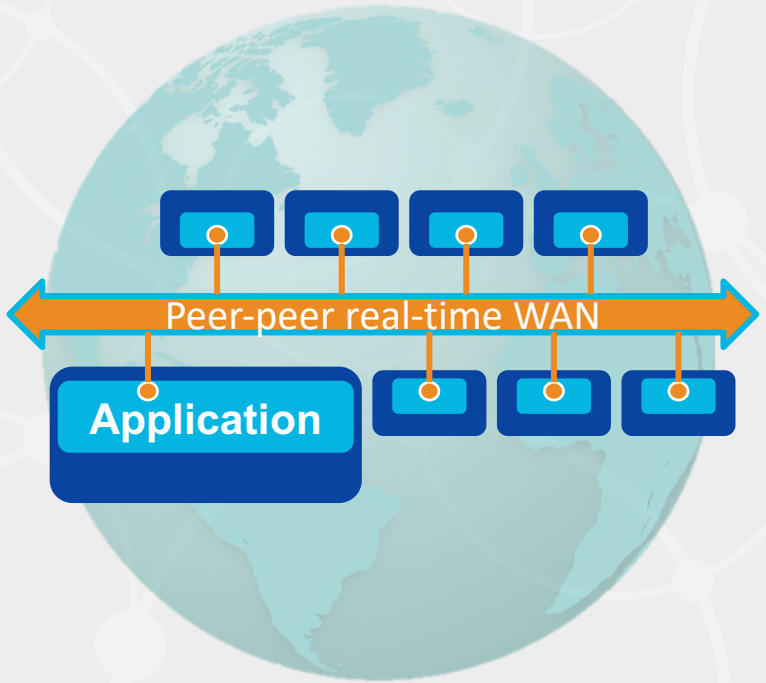
Connext Anywhere

- First software framework to support real-time communication over wide area, mobile and public networks
- Enables remote operation of autonomous systems



Connext Secure
+ Real-Time WAN Transport
+ Cloud Discovery Service
Connext Anywhere

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Connext Anywhere Lets RTI Take On Bigger Things

- Operators farther from the loop
- Analytics & decision support
- Everything as a Service (XaaS)

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More language options to choose from

New modernized multi-platform .NET API

New experimental Python API

C++11 improvements

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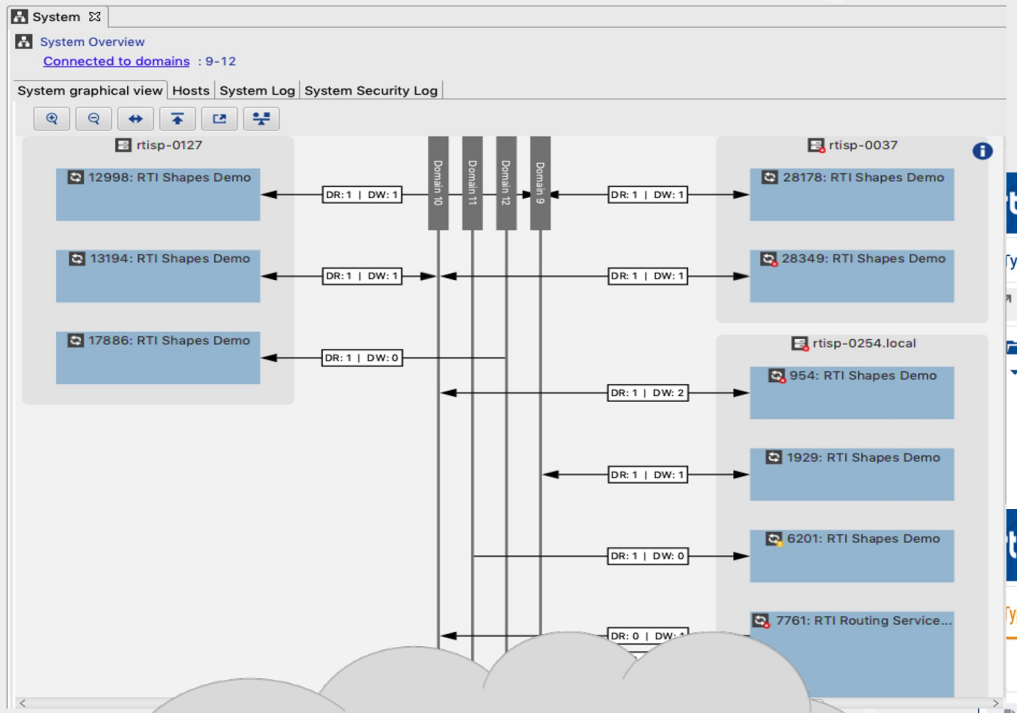
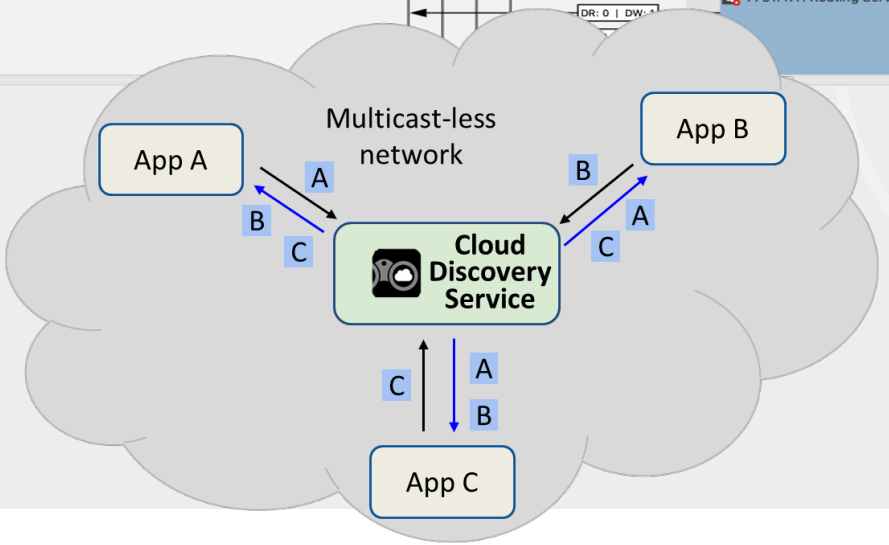
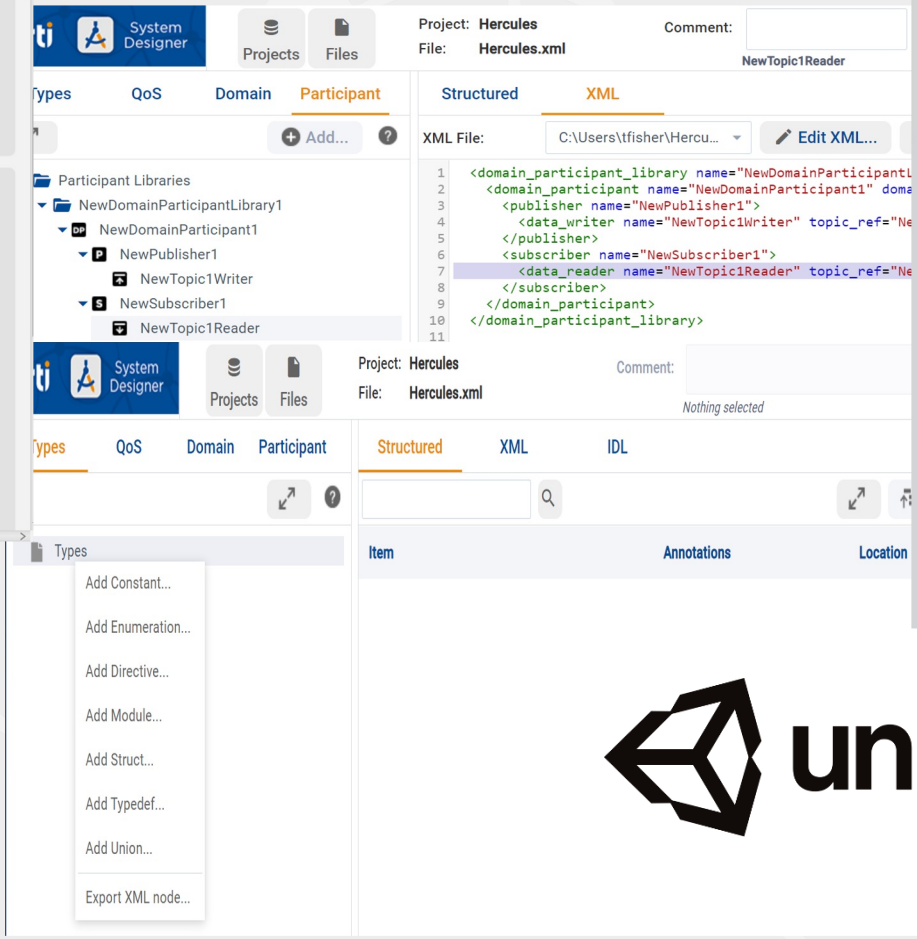
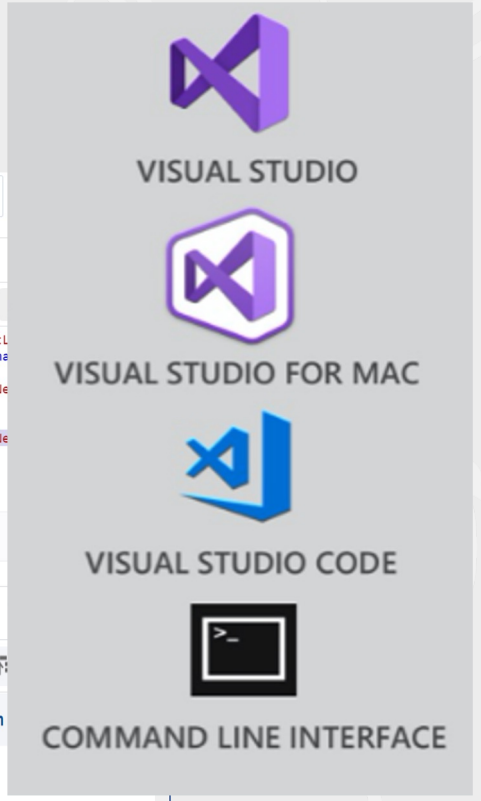
With Broader Use and Better Understanding









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4 NEW RTI Labs!

New Labs Products:

OPC UA Gateway

Connext Gateway

Connext Nano

OpenSSL CNG Engine

Graduated Labs Products:

System Designer

Cloud Discovery Service

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RTI Connext Drive

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Connext Drive

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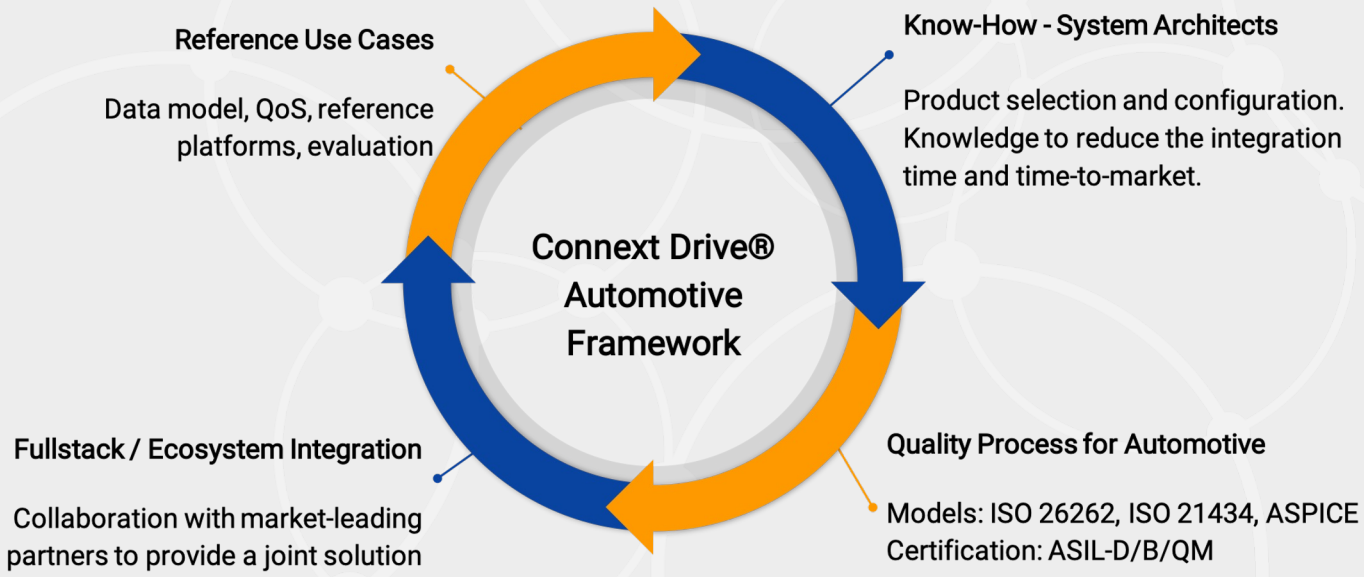
Connext Drive is a *Solution*

The First Complete Automotive-Grade Connectivity Solution for Autonomous Vehicle Development

Connext Drive ***is***:

- Product
- Services
- A Pricing Model
- Industry Use Cases
- A Process to Engage Customers
- An automotive-specific license



Connext Drive is a targeted business model for automotive customers

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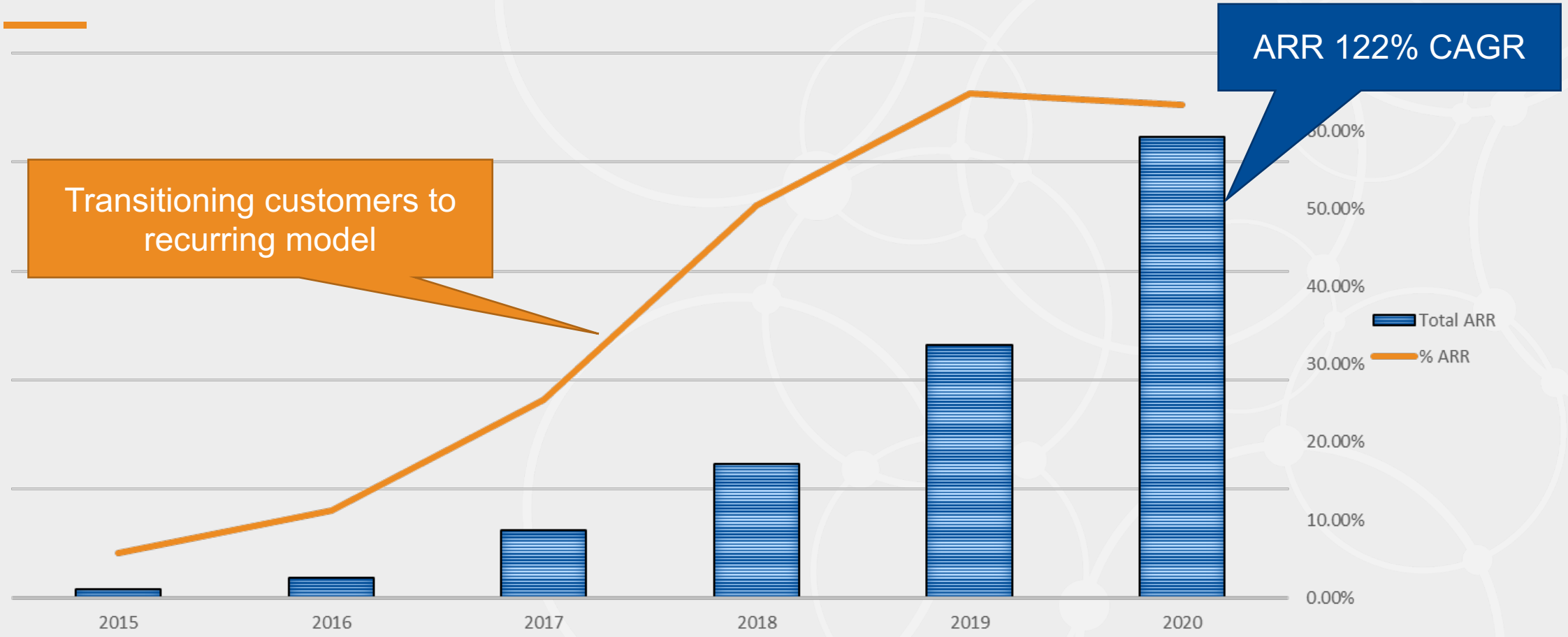
RTI's Automotive Growth!



Growing very quickly, faster than expected

Thanks to the 1RTI cast: Automotive Tiger Team, Micro & Cert teams, Account teams, Legal, Finance, IT, Ops support, AUTOSAR team, Marketing, and many more…

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INDY
AUTONOMOUS
CHALLENGE
OCT. 23, 2021
Oct 23!
rti

Courtesy TUM (Technical University of Munich)

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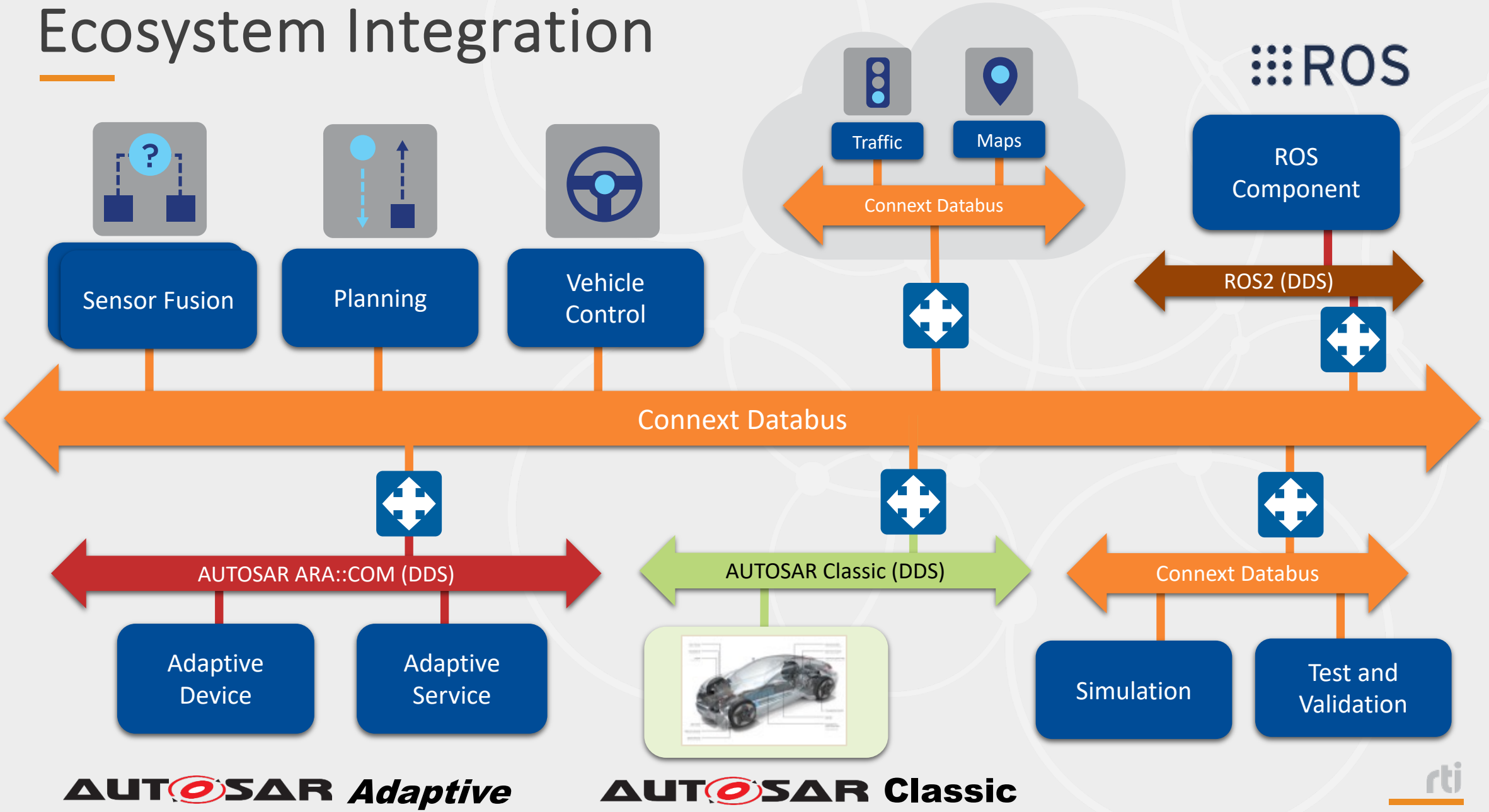
Ecosystem Integration



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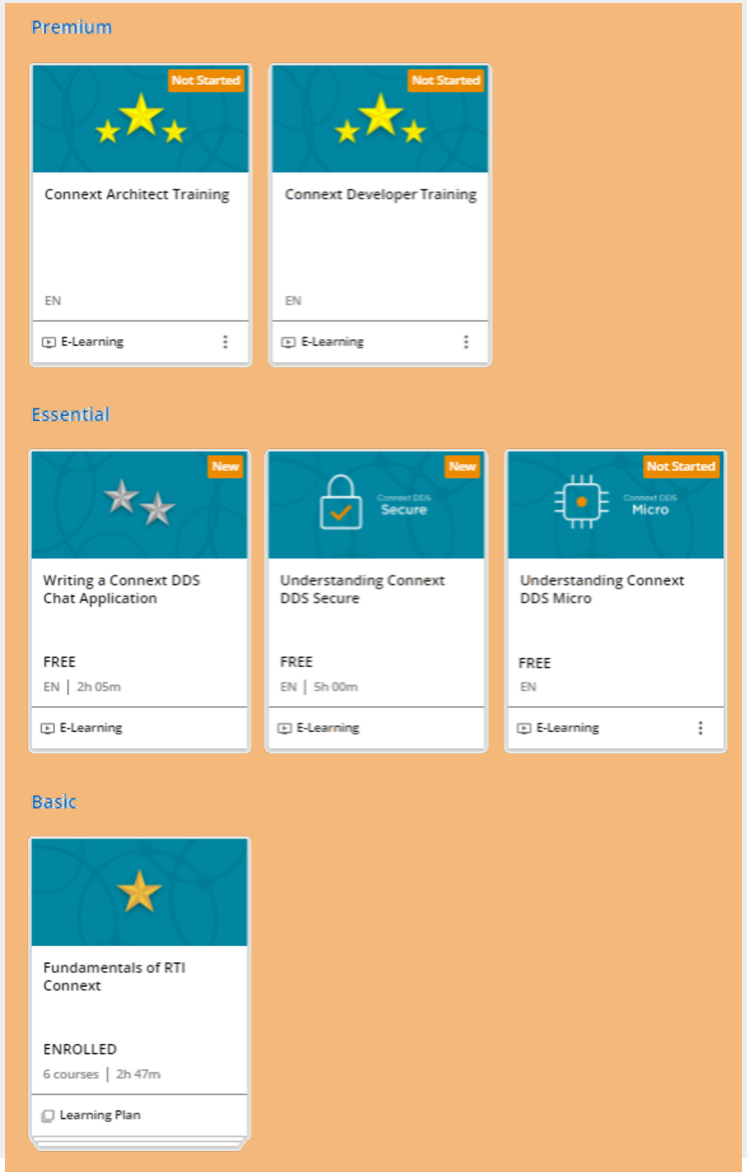
Growing Partner Ecosystem

rti
ACADEMY™

RTI Academy



- Connext Developer & Architect Training
- Understanding Connext DDS Secure and Micro
- Over 10 hours of Connext product training

rti | ACADEMY™

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40 Xclerators Now Available!!…

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Customer Success Now Active

Move beyond what works. **Find what delights.**

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You can’t build a culture in pieces, any more than you can water a parking lot and call it a rainforest. Like our slogan, it has to *Work as One*.

RTI’s Product is Our Entire Ecosystem

Returning to Physical Events!

AUVSI XPONENTIAL™
ALL THINGS UNMANNED

Autonomy

MINEXPO INTERNATIONAL 2021

Agriculture, Mining & Construction

U.S. Army FACE Technical Interchange Meeting (TIM) Event

September 14

Aerospace & Defense

AEROSPACE TechWeek.com

Aerospace & Defense

Air Missile Defence Technology Event

November 17-18

Aerospace & Defense

Modeling, Simulation & Training

CES®
LAS VEGAS
5 - 8 January 2022

Automotive

rti

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Industry Insights!

EMEA/APAC – October 19 & 20

- Dr.-Ing. Thomas Krueger, European Space Agency (ESA).
- Li Mu, Software Architect, Li Auto
- Rune Volden, Head of Dept ICT and Natural Science, NTNU
- Dr. Eyal Yoskovitz, our VP Products, 634AI

US/Americas – October 26 & 27

- Ryan Darnley, Engineer II, Carnegie Mellon University
- Richmund Fries, VP Technology, DocBox, Inc.
- Jac Stofberg, Principal Software Engineer, Schilling Robotics
- David Fidalgo, Founder& CEO @ Y-Mobility / VP & Founder @ AEVAC – Spanish AV Vehicle Association

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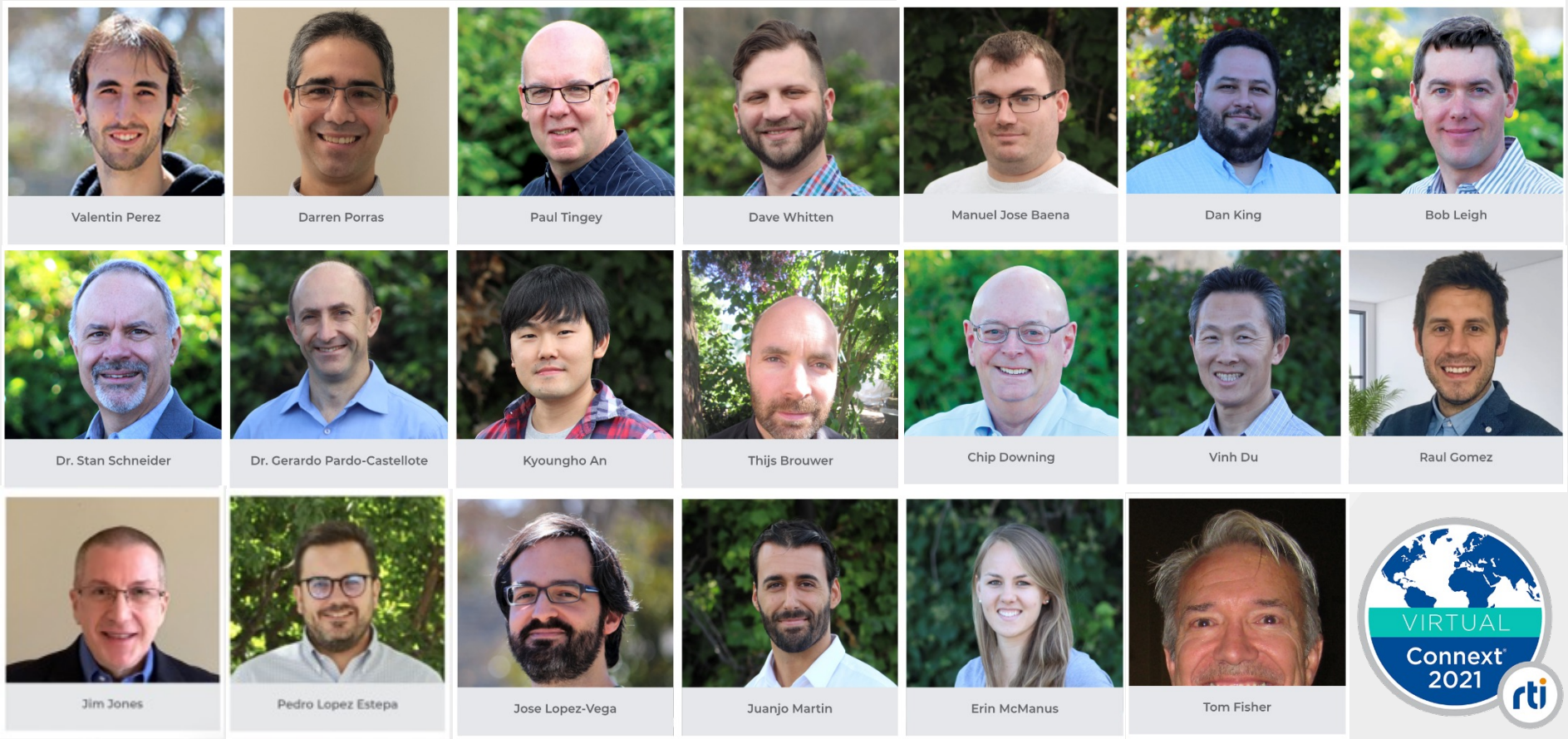
RTI Staff

Pics of presenters and support staff, esp thanking event organizers.

RTI Experts:



Event Organizers:

1RTI effort: P&M, Engineering, Services, CTO, Marketing, IT

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Autonomy is the Future

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Runs a Smarter World

Stay Connected

rti.com
Free trial of Connext DDS

rtisoftware

@rti_software

connextpodcast

@rti_software

rti.com/blog

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