



**Stan Schneider**  
**RTI CEO**



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# Capture the Prize



Stan Schneider, PhD

RTI CEO





In the last 25 Years...

CPUs improved *100,000x*  
Ohio State got more annoying



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



CPUs improve *10 Billion x* every 50 years...





AI  
Today...



# AI Tomorrow

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



The background of the slide features a light gray pattern of overlapping circles. At the points where the circles intersect, there are small white circular nodes. These nodes are connected by thin white lines, creating a network-like structure that spans the entire slide.

*One software architecture will lead the change  
to intelligent distributed infrastructure*



A street signpost with two signs. The top sign is light green with the text 'Artificial Intelligence' in white. The bottom sign is dark green with the text 'Pervasive Networking' in white. The signpost is set against a background of a blue sky with clouds and a tall evergreen tree.

*Artificial Intelligence*

*Pervasive Networking*

RTI lives at the  
intersection of functional  
artificial intelligence and  
pervasive networking<sup>SM</sup>



# 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?

3+ Yes?





# Can RTI Lead this Transition?

#1 in autonomy

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

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.

#1 in intelligent distributed systems

#1 in deployment

Contribution to a better world





# 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.



# Capture *The Prize*

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

## **RTI Runs a Smarter World**



# Autonomy Changes *Everything*

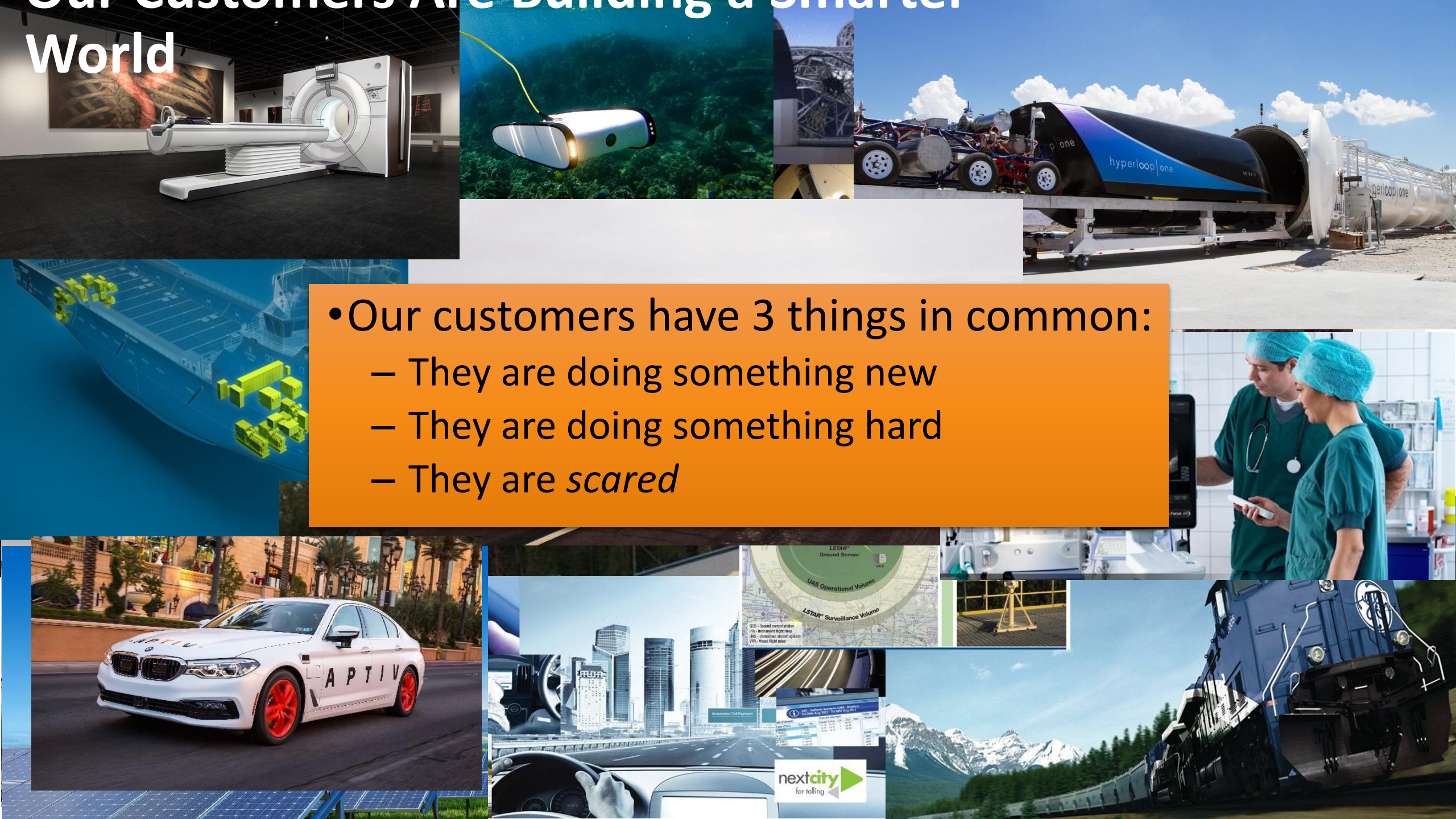
- Transportation
  - Autonomous vehicles
  - Rail & mass transit
  - Traffic control (ground & air)
  - Urban Air Mobility
- Energy
  - Renewable generation (hydro, wind, solar)
  - DER integration (future grid)
  - Automated drilling & production
- Medical
  - Intelligent connected medical devices
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





# 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*





- 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*



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

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RTI excels at distributed software. And distributed teams...





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.

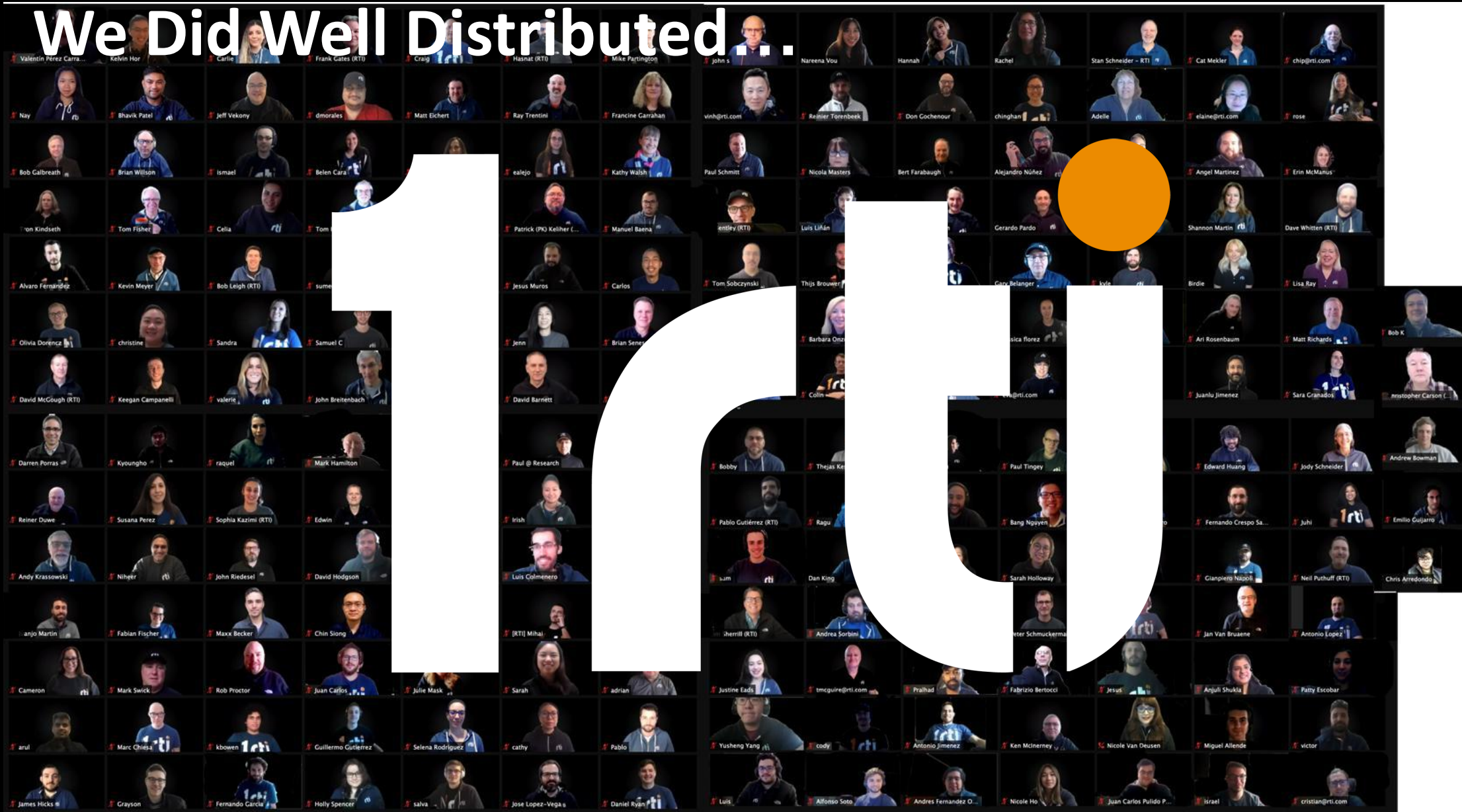
If you could get all the people in an organization rowing in the same direction, you could dominate any industry, in any market, against any competition, at any time.

Patrick Lencioni

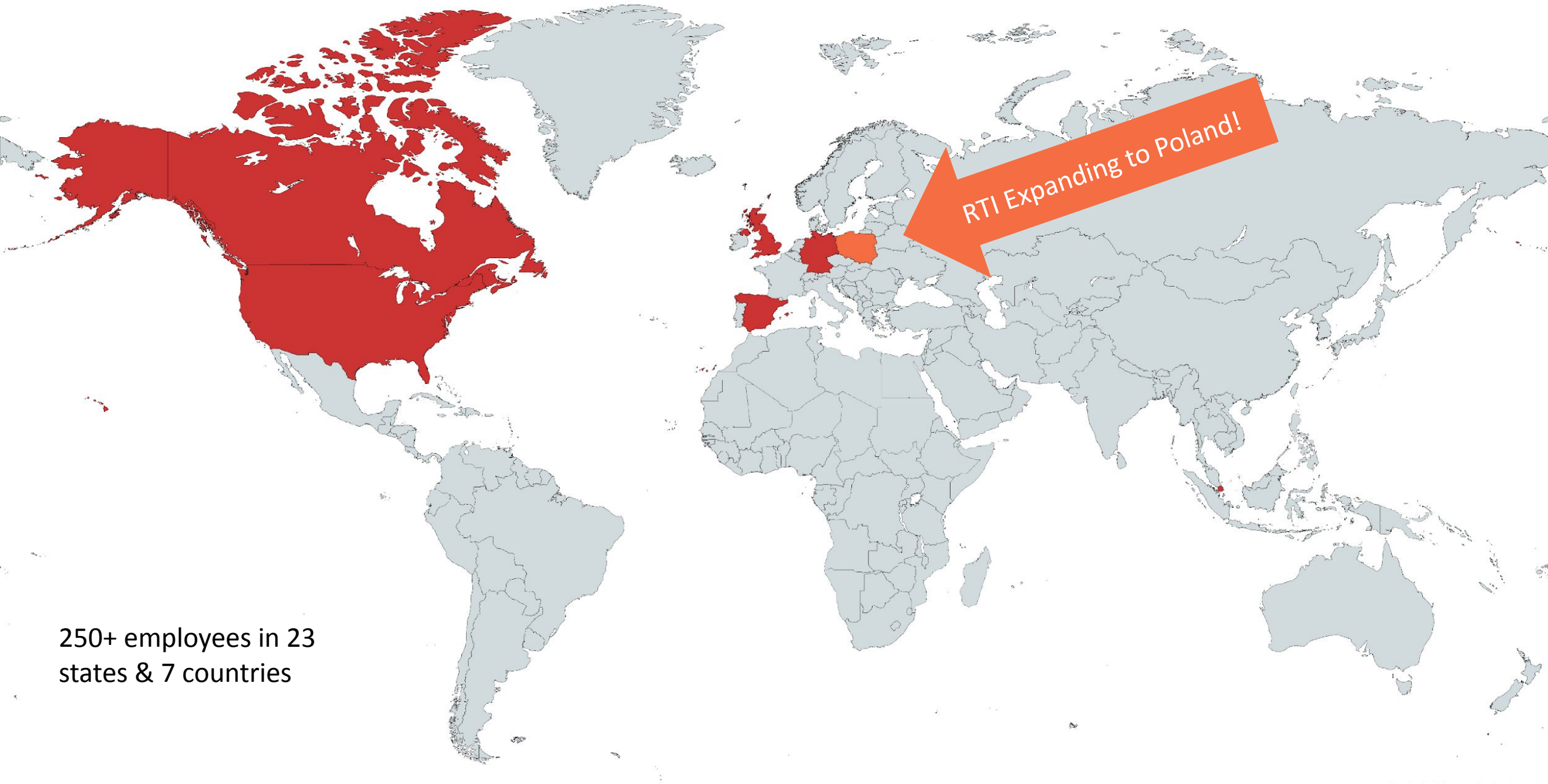
(tl;dr: Teamwork)



# We Did Well Distributed..







250+ employees in 23  
states & 7 countries

RTI Expanding to Poland!



# RTI HQ, Sunnyvale, CA



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







\*\*NOT TO SCALE\*\*

232 East Java Drive  
Sunnyvale, CA 94089





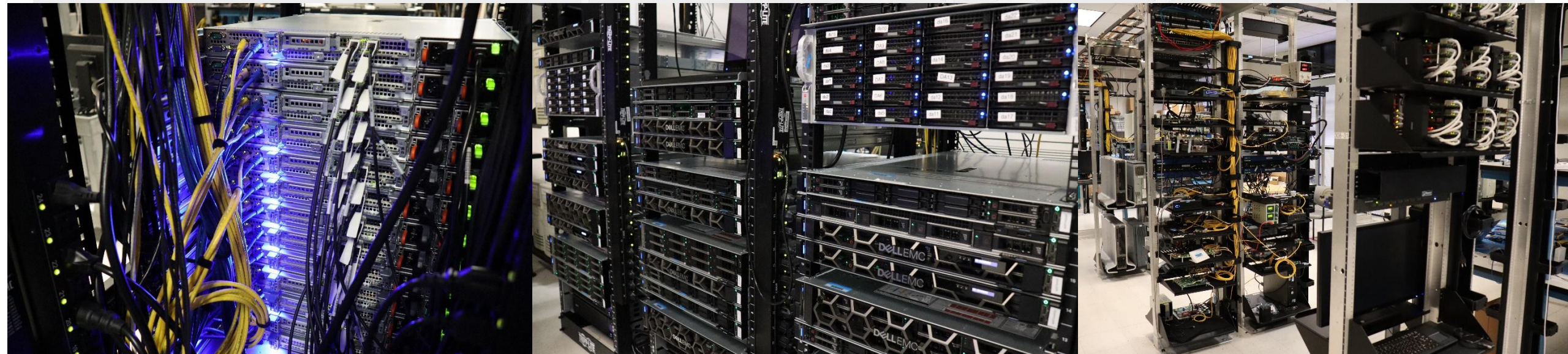
# Plenty of Room for Fun!





# 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





# Denver Office

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









# Spain Office Open!



ESCUELA  
DE DANZA  
URBANA  
**BASMOVE**



# Viva España!





# RTI Singapore

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



# RTI Poland: Certification Expertise





# 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





# 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!





**Great  
Place  
To  
Work<sup>®</sup>**

**Certified**

**MAR 2021-MAR 2022**

**USA**

**TM**

**Great  
Place  
To  
Work<sup>®</sup>**

**Certified**

**MAR 2021-MAR 2022**

**ESP**






A photograph of a gnarled, ancient-looking tree with a prominent loop in its trunk, set against a sunset sky. The tree is silhouetted against the warm orange and pink hues of the setting sun. The background shows a rocky landscape with other trees and distant mountains.

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



The logo consists of the characters '1r ti' in a white, bold, sans-serif font. A solid orange circle is positioned above the dot of the 'i'. The entire logo is set against a black background and has a dark gray reflection below it.

1r ti

Here to Serve You



# What is RTI's Product?

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A plane *has* engines



An elephant *has* a trunk



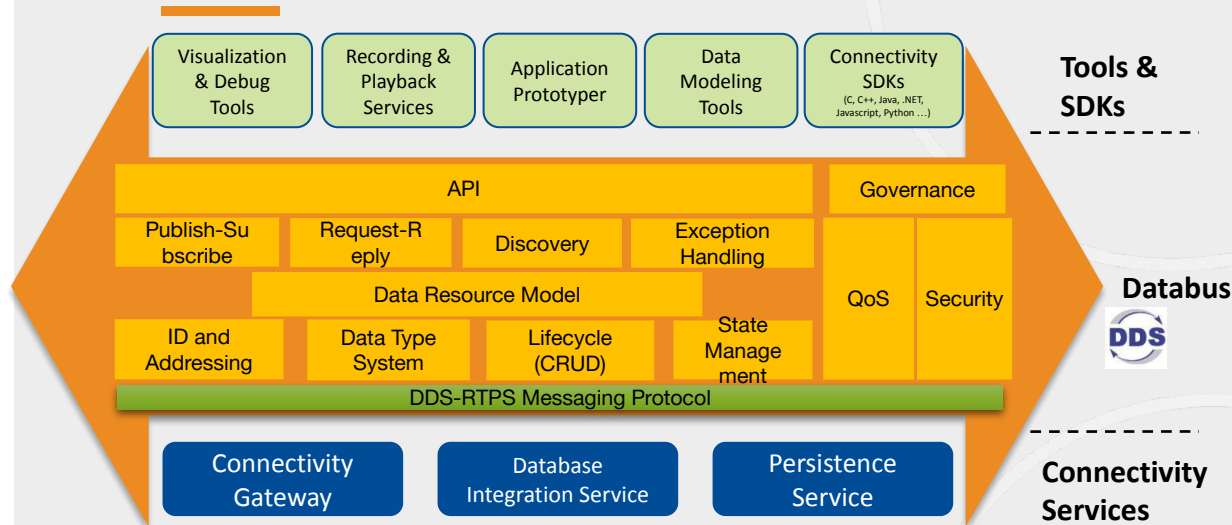


A runner *has* legs

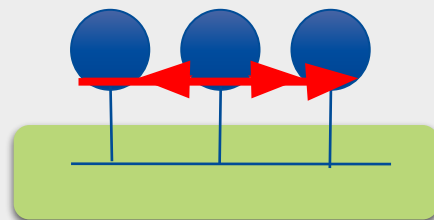




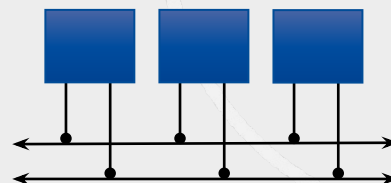
# RTI Connex *has* a DDS



## Databus

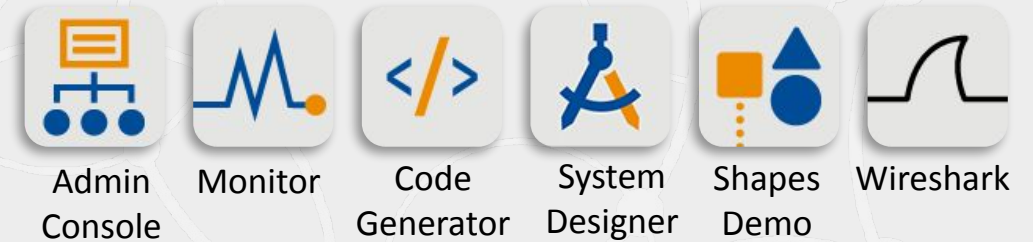


## Security

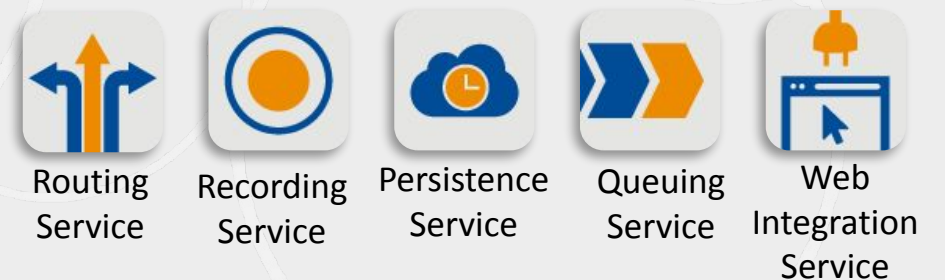


## Safety Cert

## Tools



## Services





# RTI is Far More than DDS

- RTI Connex *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



RTI Connex



# Introducing



The First Software Framework for Widely Distributed Autonomous Systems



## **Connect Widely Distributed Systems**

Real-Time WAN | Discovery | Data Compression

Bigger

## **Unite More Applications**

Platforms | Languages

Broader

## **Increase Developer Productivity**

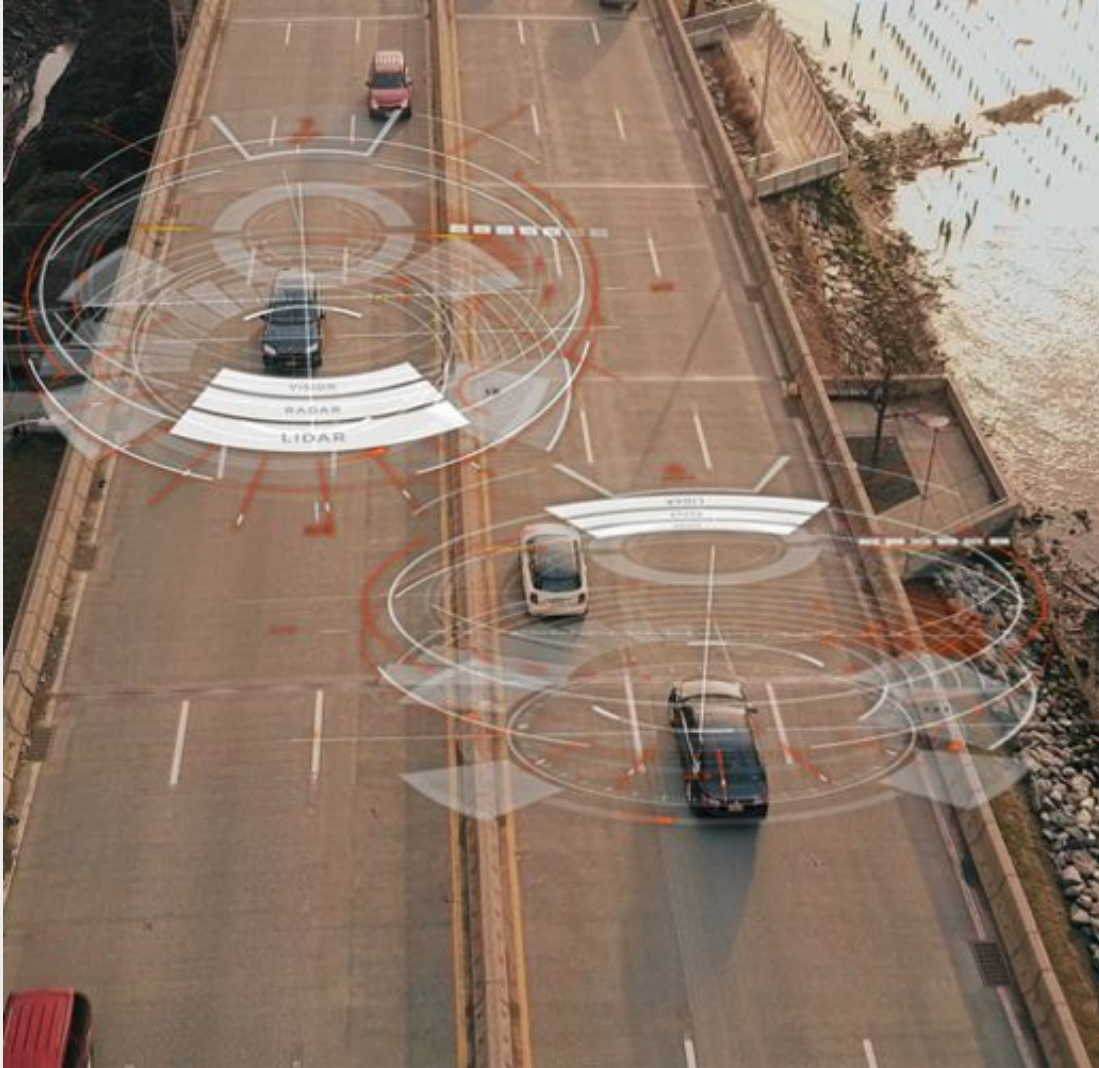
Observability | Enhanced Documentation | Configuration

Better





# Introducing *Connex* Anywhere



WAN Connectivity

to remote endpoints

that is seamless

scalable and

secure



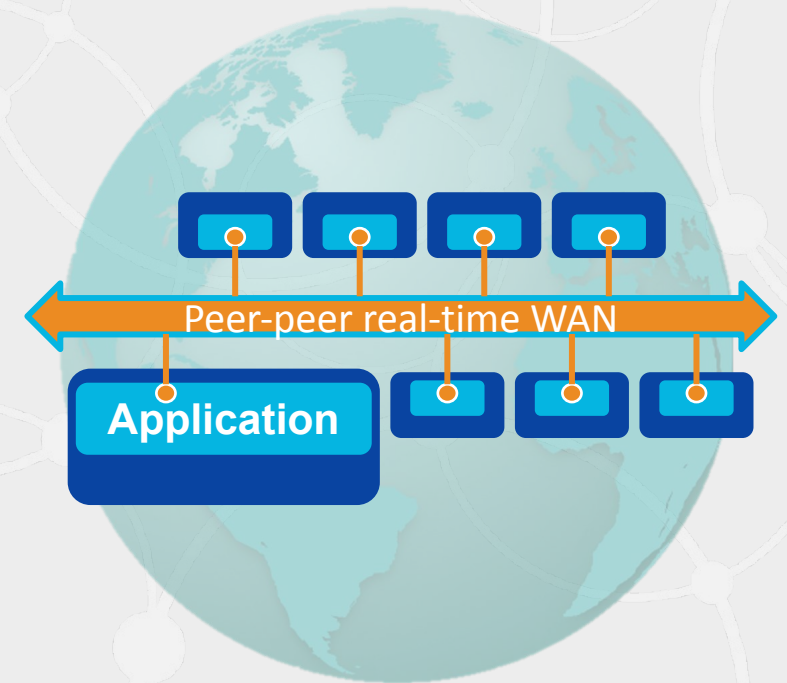
# Connext Anywhere

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

Connex Secure  
+ Real-Time WAN  
Transport

± Cloud Discovery Service

**Connex Anywhere**





# Connexx Anywhere Lets RTI Take On Bigger Things

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





# More language options to choose from



New experimental  
Python API



New modernized  
multi-platform .NET API



C++11 improvements



Java™

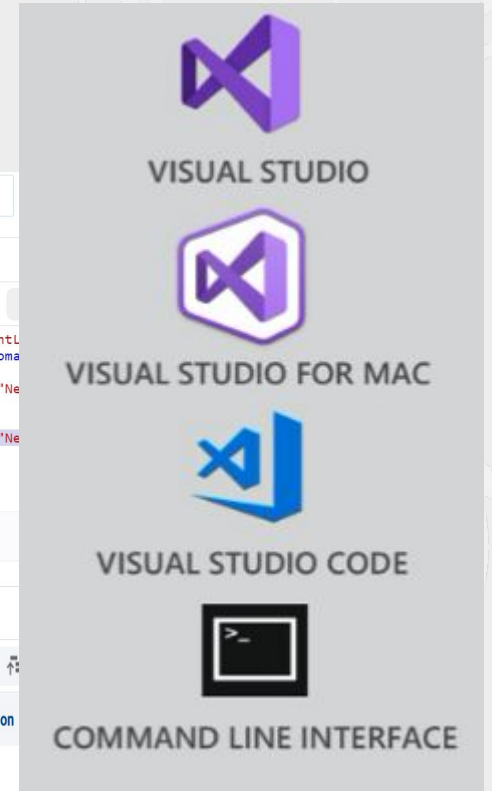
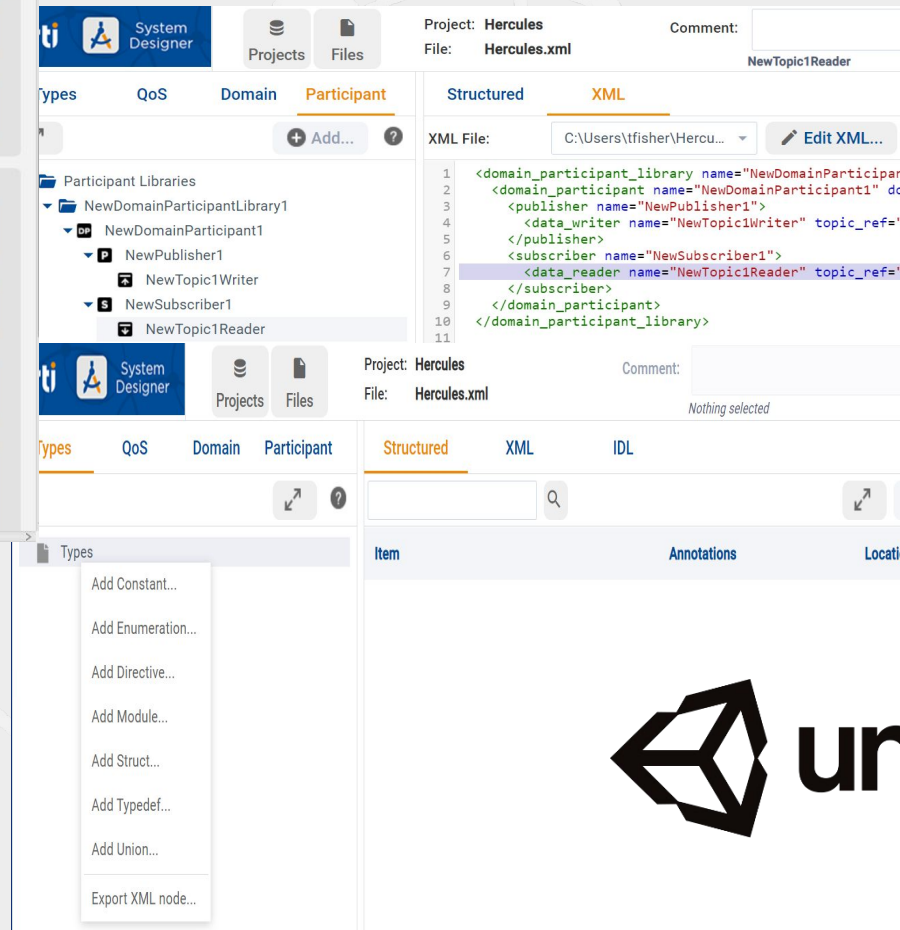
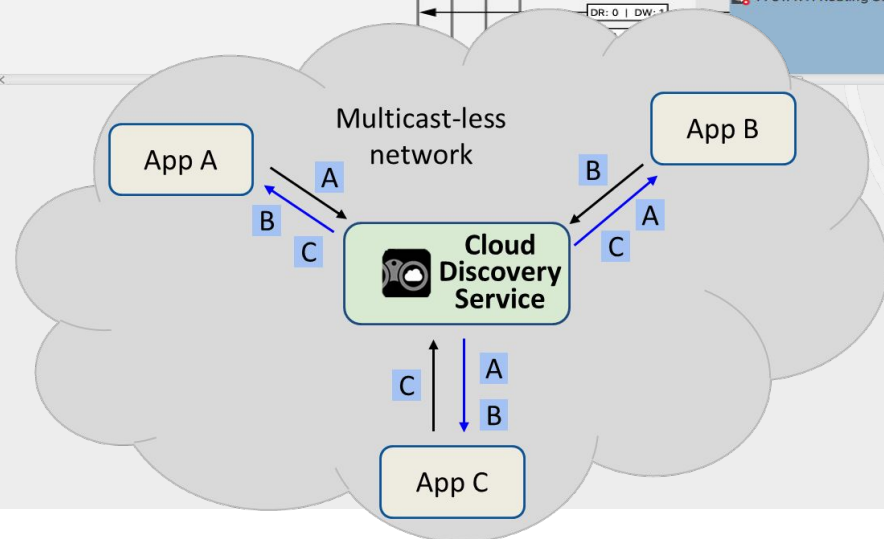
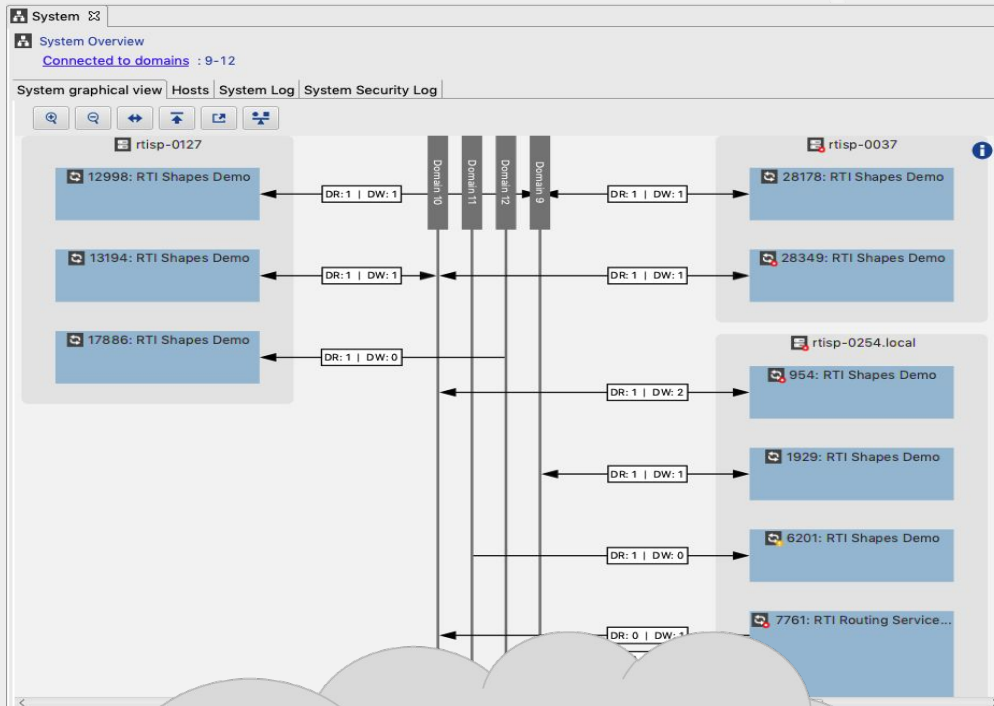


Ada





# With Broader Use and Better Understanding





# 4 NEW RTI Labs!



## New Labs Products:

OPC UA Gateway



Connex Gateway



Connex Nano



OpenSSL CNG Engine



## Graduated Labs Products:

System Designer



Cloud Discovery Service





# RTI Connex Drive



# Connext Drive



P. BYRNES.

CartoonStock.com



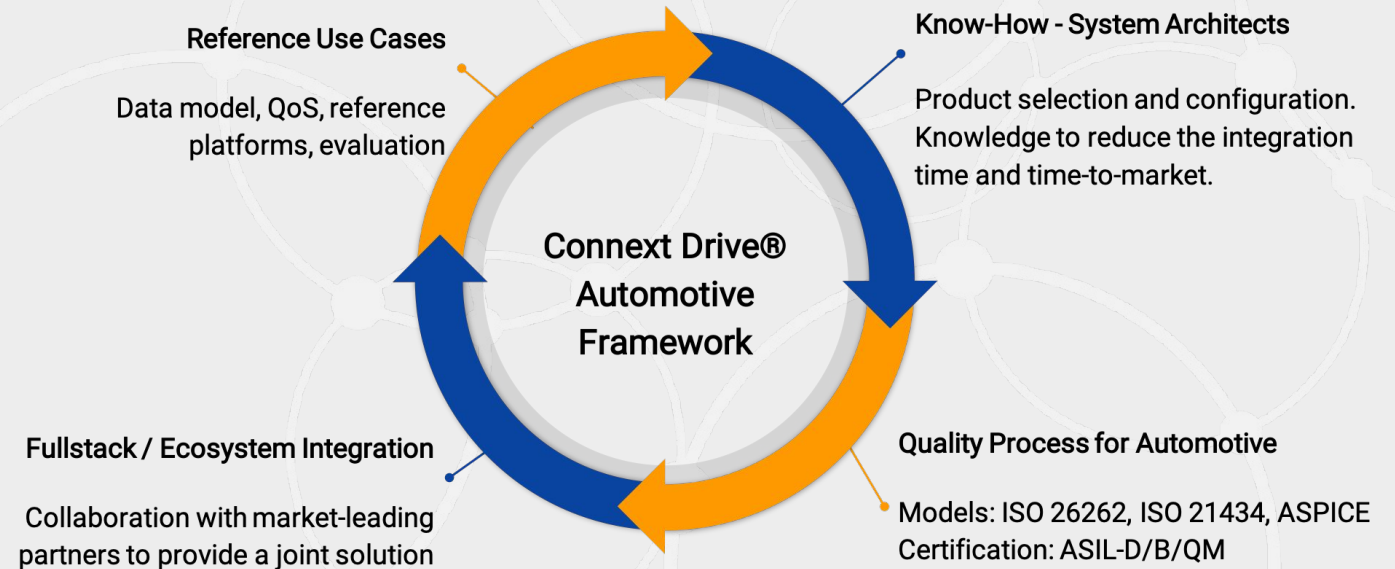


# Connnext Drive is a *Solution*

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

Connnext Drive *is*:

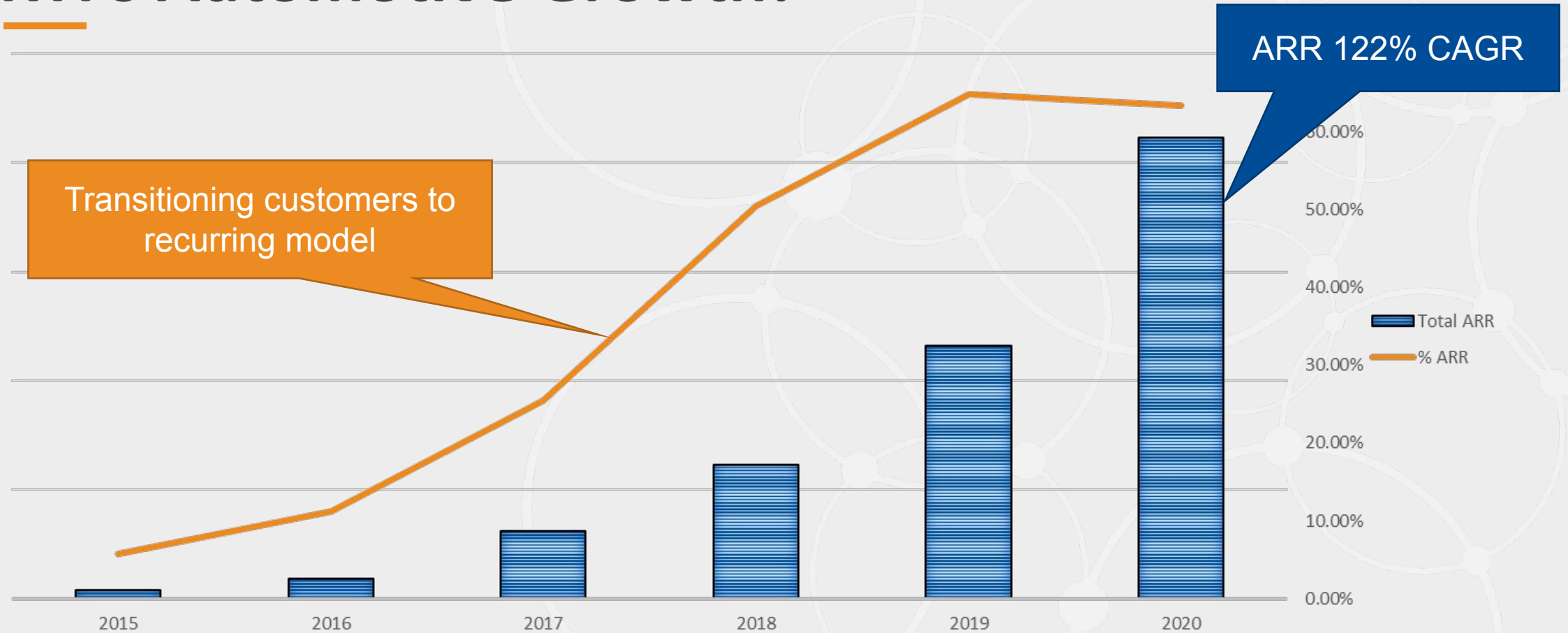
- Product
- Services
- A Pricing Model
- Industry Use Cases
- A Process to Engage Customers
- An automotive-specific license



Connnext Drive is a targeted business model for automotive customers



# 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...





Oct 23!

rti



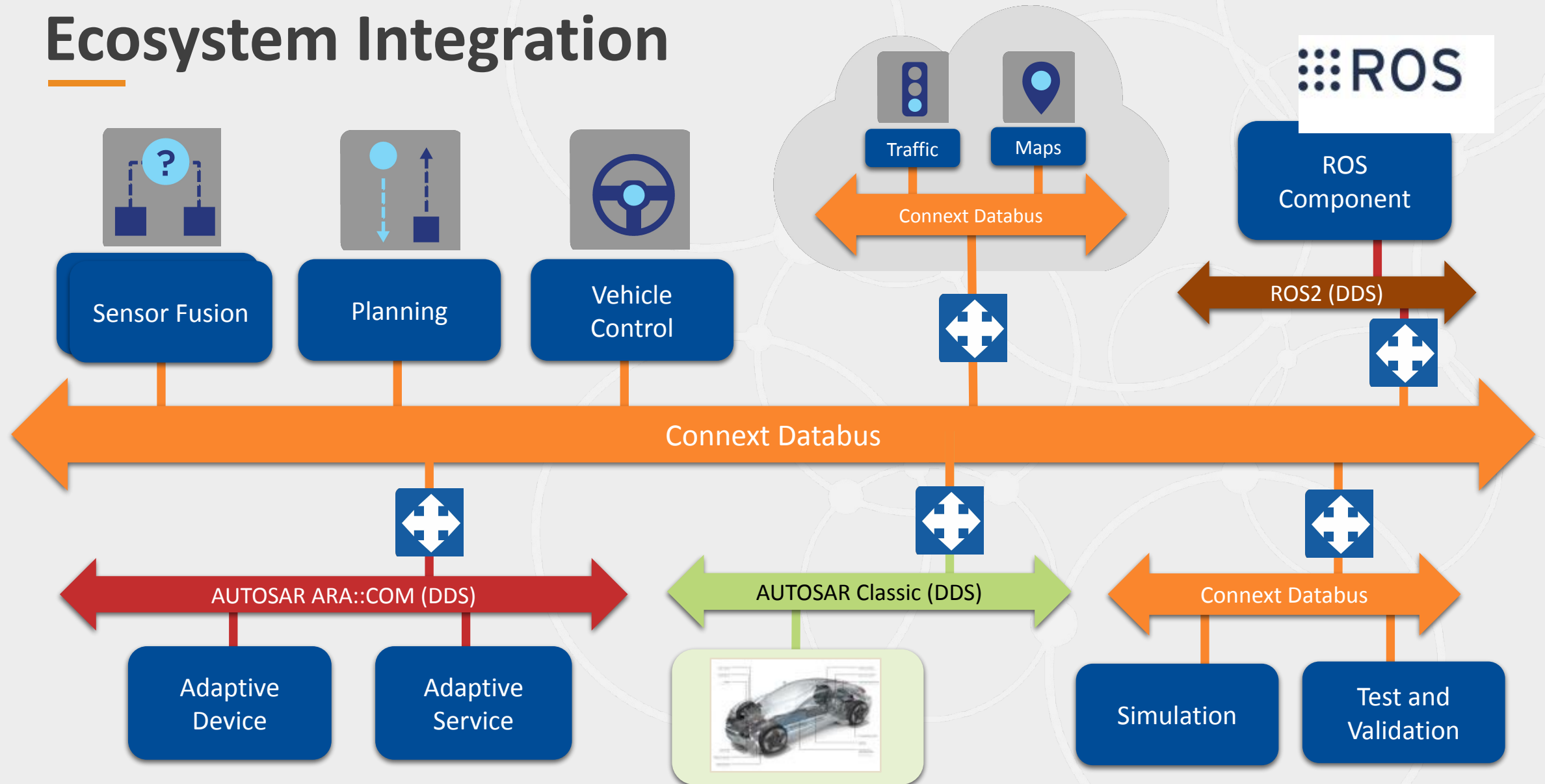




Courtesy TUM (Technical University of Munich)

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# Ecosystem Integration



**AUTOSAR Adaptive**

**AUTOSAR Classic**





# Growing Partner Ecosystem

## Operating Systems and Computing Platforms



## Security



## Safety and Certification



## Tools and Technology Integration



## RTI Services Delivery Partners






ACADEMY™



# RTI Academy

## Premium

Not Started

Connex Architect Training

EN

E-Learning


Not Started

Connex Developer Training

EN

E-Learning

## Essential

New

Writing a Connex DDS Chat Application

FREE  
EN | 2h 05m

E-Learning

New

Understanding Connex DDS Secure

FREE  
EN | 5h 00m

E-Learning


Not Started

Understanding Connex DDS Micro

FREE  
EN

E-Learning

## Basic



Fundamentals of RTI Connex

ENROLLED  
6 courses | 2h 47m

Learning Plan

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



# 40 Xclerators Now Available!!...

**Learn**

Connext DDS Professional Training

Accelerate your understanding of the Connext connectivity framework

☐ [Learn more >](#)

**Learn**

Using Connext Tools to troubleshoot and debug

Learn tools, utilities, tips and tricks phases of your project

☐ [Learn more >](#)

**Learn**

Using RTI Routing Service to bridge domains, LANs, and data

☐ [Learn more >](#)

**Learn**

Data-centric command and response

Learn how to apply the most common patterns for command and response.

☐ [Learn more >](#)

**Learn**

RTI Connector Training

Learn how to access the databus with Python and Javascript apps

☐ [Learn more >](#)

**Learn**

RTI We

Learn how

☐ [Learn more >](#)

**Learn**

Admin Console, Monitor, Distributed Logger, and more

Learn how to use the Connext graphical tools to understand your system

☐ [Learn more >](#)

**Learn**

Connext DDS Secure Train

Learn security design to address threats faced by your system

☐ [Learn more >](#)

**Learn**

Optimize large data handling with Flat Data and Zero Copy

Minimize latency when publishing and receiving large data samples

☐ [Learn more >](#)

**Learn**

RTI Database Integration Service Training

Learn how your database can participate on the databus

☐ [Learn more >](#)

**Learn**

RTI Persistence Service Training

Learn how to persist data to optimize delivery

☐ [Learn more >](#)

**Learn**

Using ROS 2 with Connext DDS

Learn how ROS 2 applications can maximize the power of Connext DDS

☐ [Learn more >](#)

**Learn**

Debugging RTI Connext DDS with Wireshark

Using Wireshark to capture and analyze RTPS packets from Connext DDS

☐ [Learn more >](#)

**Learn**

Custom Transports for RTI Connext DDS

Create your own transport for custom networks or special protocols

☐ [Learn more >](#)

**Learn**

Working with large data

Learn to achieve optimal performance when working with large data

☐ [Learn more >](#)

**Apply**

Increase application efficiency with smart filtering

Exploit the databus to filter data and increase application efficiency

☐ [Learn more >](#)

**Apply**

Understanding the Connext DDS threading model

Expert help when fine-grained thread control is required

☐ [Learn more >](#)

**Apply**

Reliability mentoring, and review

Identify the optimal configuration for your critical data flows

☐ [Learn more >](#)

**Apply**

Understanding and utilizing common use case patterns

Learn how to apply proven patterns for your data flows

☐ [Learn more >](#)

**Apply**

Design Mentoring & Applying Best Practices

Focused guidance on how to use Connext DDS to meet your needs

☐ [Learn more >](#)

**Apply**

Architecture, Security, and System Planning

Create an architectural strategy powered by Connext DDS

☐ [Learn more >](#)

**Apply**

Maintaining and evolving your deployed system

Explore how to increase value and add new capability to your system

☐ [Learn more >](#)

**Apply**

System deployment readiness review

Access expertise to analyze and review your system before deployment

☐ [Learn more >](#)

**Apply**

Designing RTI Routing Service adapters

Learn how to integrate non-DDS communications using Routing Service

☐ [Learn more >](#)

**Apply**

Security assessment

Customized assessment of focusing on security with

☐ [Learn more >](#)

**Apply**

Optimizing Connext DDS discovery for your system

☐ [Learn more >](#)

**Apply**

Managing interoperability between Connext DDS and other DDS implementations

☐ [Learn more >](#)

**Solve**

Accelerating your development efforts

Deploy our experienced engineers to accelerate your development

☐ [Learn more >](#)

**Solve**

Custom Mentoring

Accelerate your team's efforts with help from an RTI expert

☐ [Learn more >](#)

**Solve**

Performance Analysis and Tuning

Ensure Connext DDS satisfies your critical performance needs

☐ [Learn more >](#)

**Solve**

Accelerating your Proof-of-Concept

Accomplish your PoC objectives with expert guidance

☐ [Learn more >](#)



# Customer Success Now Active

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



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!



Autonomy



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



Automotive

# 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
- Richmond 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





# Early Applications Adopting RTI Connex DDS

- Transportation

- Autonomous vehicles
- Rail & mass transit
- Traffic control (ground & air)
- Urban Air Mobility

ConnexCon 2021



- Energy

- Renewable generation (hydro, wind, solar)
- DER integration (future grid)
- Automated drilling & production



ConnexCon 2021



- Medical

- Intelligent connected medical devices
- Imaging & treatment systems
- Surgical and diagnostic robotics

ConnexCon 2021

- Defense

- Naval systems
- Open architecture integration
- Radar/antimissile/air defense
- Avionics & UAS
- Ground vehicles

ConnexCon 2021

ConnexCon 2021

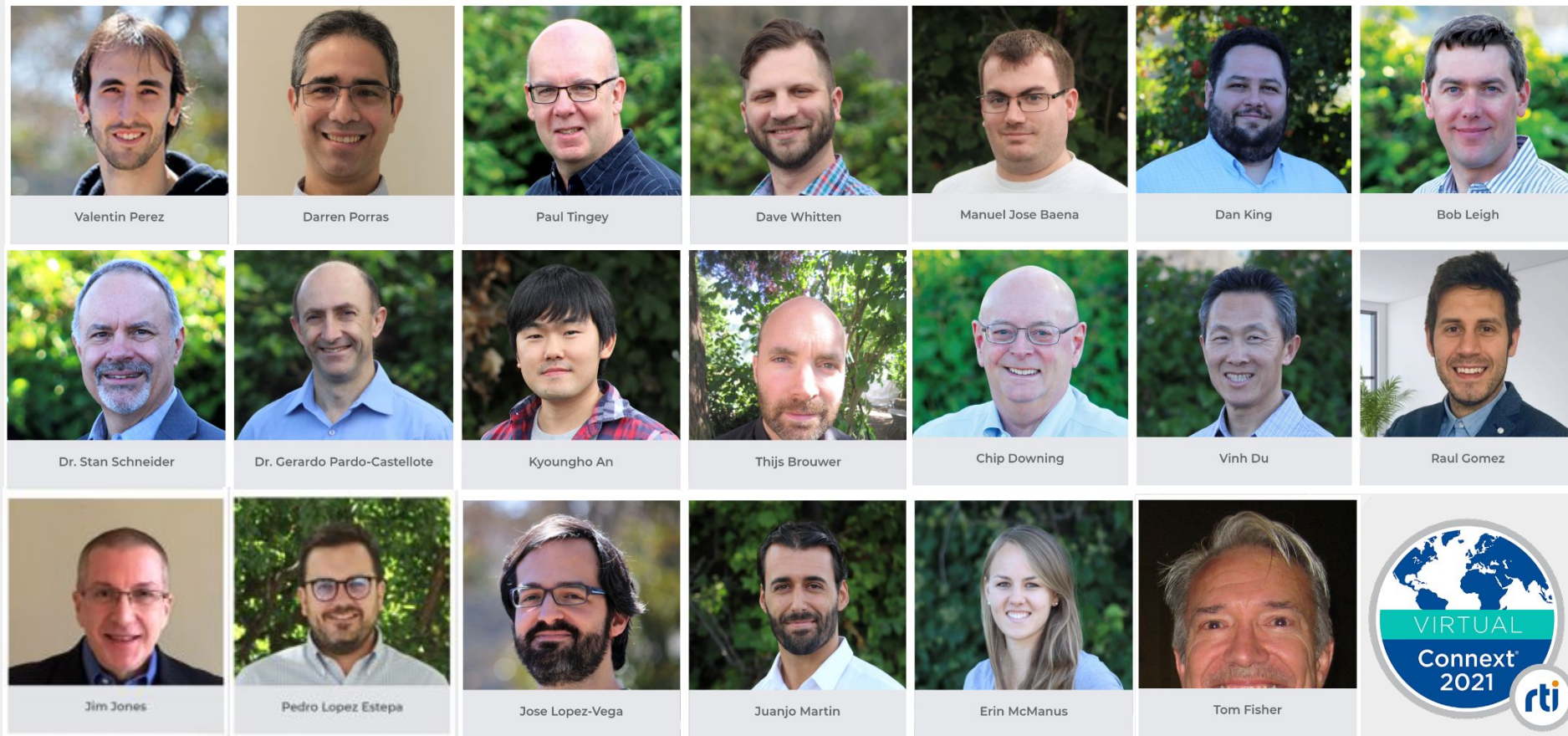


- Simulation and training

# RTI Staff

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

## RTI Experts:



## Event Organizers:

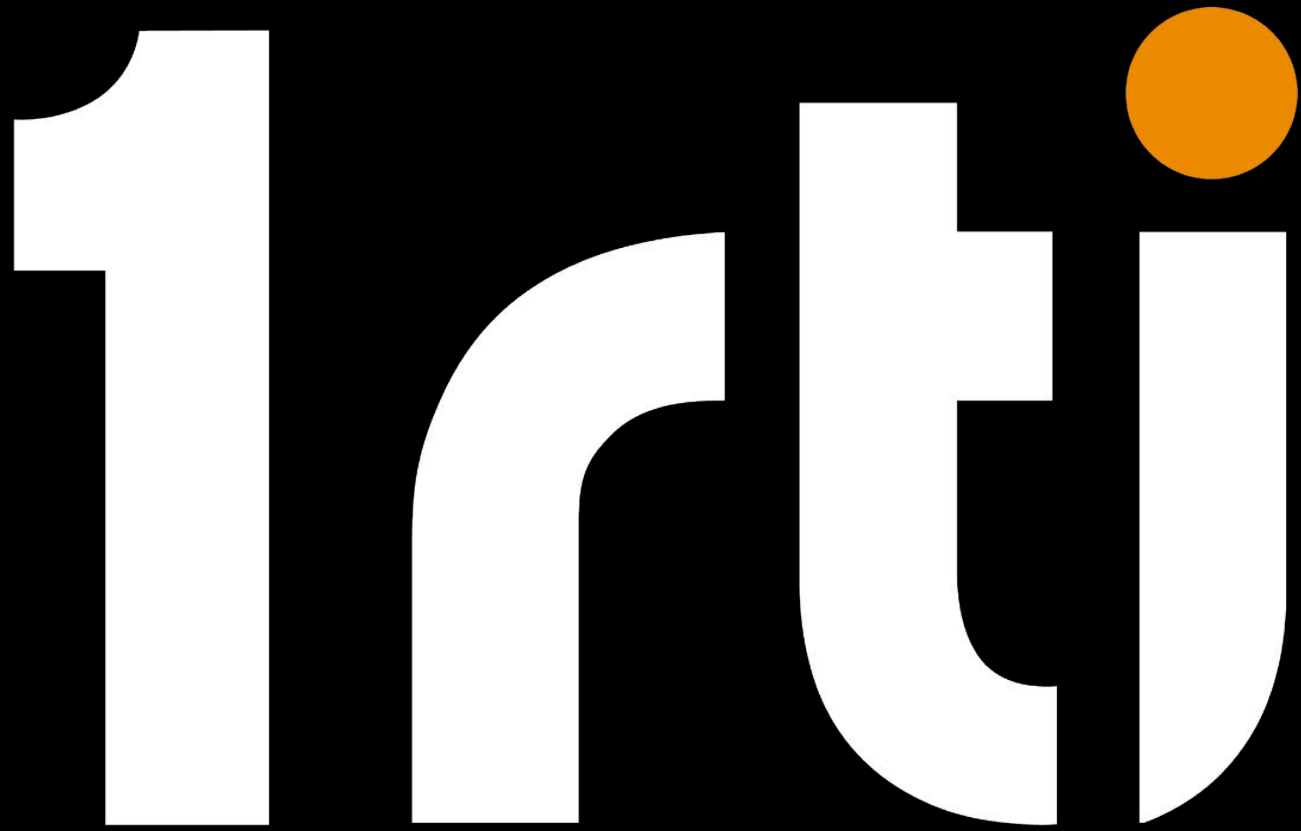


1RTI effort: P&M, Engineering, Services, CTO, Marketing, IT



# Autonomy is the Future





Runs a Smarter World



# Stay Connected



[rti.com](https://rti.com)  
*Free trial of Connex DDS*



[@rti\\_software](https://twitter.com/rti_software)



[@rti\\_software](https://www.instagram.com/rti_software)



[rtisoftware](https://www.facebook.com/rtisoftware)



[connextpodcast](#)



[rti.com/blog](https://rti.com/blog)

