



Cooperative Automated Transportation (CAT) system deployments (US and international)

Randell H. Iwasaki, P.E.





TRB NCHRP 20-24(128)

Randell H. Iwasaki, P.E.





Members of the SCAN Tour

State DOT CEOs (8)
County DOT CEOs (2)
FHWA
AASHTO
ITS America

Randell H. Iwasaki, P.E.



Scan Tours

Las Vegas:

Aptiv, City of Las Vegas, Keolis, Nevada DOT, RTC
Southern Nevada, WayCare



Scan Tours

Phoenix:

Arizona Commerce Authority, ADOT, City of Chandler, City of Scottsdale, City of Tempe, Exponent, Intel, Local Motors, Maricopa Association of Governments, Maricopa County DOT, State Farm, TuSimple, U of A, Waymo



Scan Tours

Hamburg, German (2021)

ITS World Congress 2021, L3 Pilot (Europe)

OEMs - Volkswagen, Audi, Stellantis, BMW, MB, Ford, Renault, Toyota, Honda, Jaguar, and Opel.

<https://l3pilot.eu/index.html>

34 partners: OEMs, suppliers, researchers, SMEs, insurers, one authority and one user group.



Scan Tours

England (UK)

UK Department for Transport, National Highways Agency, Transport for London, Transport for West Midlands, Oxfordshire County Council, Admiral Insurance, Appyway, Horiba Mira, Oxbotica, Valerann, UTAC, Zenzic, British Standards Institute, Smart Living Lab, Society of Motor Manufactuers & Traders, University of Oxford, University of Warwick



Scan Tours (Virtual)

Private Companies:

Argo AI, Aurora, Beep, Cavnue, Cruise, FedEx, Gatik, Robotic Research

Infrastructure Companies:

City of Marysville, OH, Florida DOT, MetroPlan Orlando, FL, Oakland County, MI

Academia & Subject Matter Experts:

Richard Bishop, University of Florida



Key Focus Areas

1. Vision
2. Organizational Readiness
3. Partnerships
4. Technology & Planning
5. Institutional Issues
6. Data
7. People



Vision

No national vision for Cooperative Automated Transportation (CAT)

Result:

NCHRP project focused on “Collective and Individual Actions for State DOTs Envisioning and Realizing the Next Era of America’s Transportation Infrastructure



Vision

When creating the National Vision, emphasize Cooperation. Based on feedback from numerous Infrastructure Owners & Operators (IOO) and industry, “it’s not healthy to compete on safety.”



Organizational Readiness

1. Complexity – there are hundreds if not thousands of agencies and private companies in this space.
2. Scope – transportation has numerous aspects and are evolving at the same time and not always on the same path. It is difficult to narrow the scope



Organizational Readiness

Maintain a state of good repair

Complexity shifts

Engage in dialogue now, even if not ready to deploy

Early dialogue can uncover inconsistencies

Laws and courts

UK - don't wait for money, start doing things and money will come



Partnerships

UK Goal 2025 for initial deployment

Actions:

Created the Center for Connected & Autonomous Vehicles (CCAV) – Mission to “make it happen in the UK before buying somewhere else.” Partnership between DOT and Dept. for Business, Energy & Industrial Strategy

Focus on 3 key areas – technology, regulation, and commercialization.



Partnerships

UK Goal 2025 for initial deployment

Actions:

CCAV (2016) issued an RFP to focus on developing a UK Testing Ecosystem for CAVs. The winning consortium evolved into Zenzic. <https://zenzic.io/>

3 pillars

Insights

Innovation

Collaboration



Partnerships

L3Pilot

- Create a standardized Europe-wide piloting environment for automated driving.
- Coordinate activities across the piloting community to acquire the required data for evaluation.
- Pilot, test and evaluate automated driving functions.
- Innovate and promote automated driving for wider awareness and market introduction.

<https://l3pilot.eu/about.html>



Technology

“Technology itself isn’t always the challenge, but in some instances, it was the technology coupled with policy issues that was much larger of an issue.”



Institutional Issues

“How technology is implemented and the key policy levers behind the decision-making are often as important (or more important) than the technology itself.”



Data

Public Sector

More specificity, outcome based, standardization, partnerships (local, state, federal)

Private Sector

More specificity, standardization, data sharing (protection), partnerships (PPP)



People

Not really on the radar screen initially

Extensive research in the UK

User acceptance and feedback

Connecting on the social side

Training (essential)



Nx Go

Introducing Nx Go

Visual Infrastructure for Advanced Mobility



Nx Go

Introduction to Nx Go

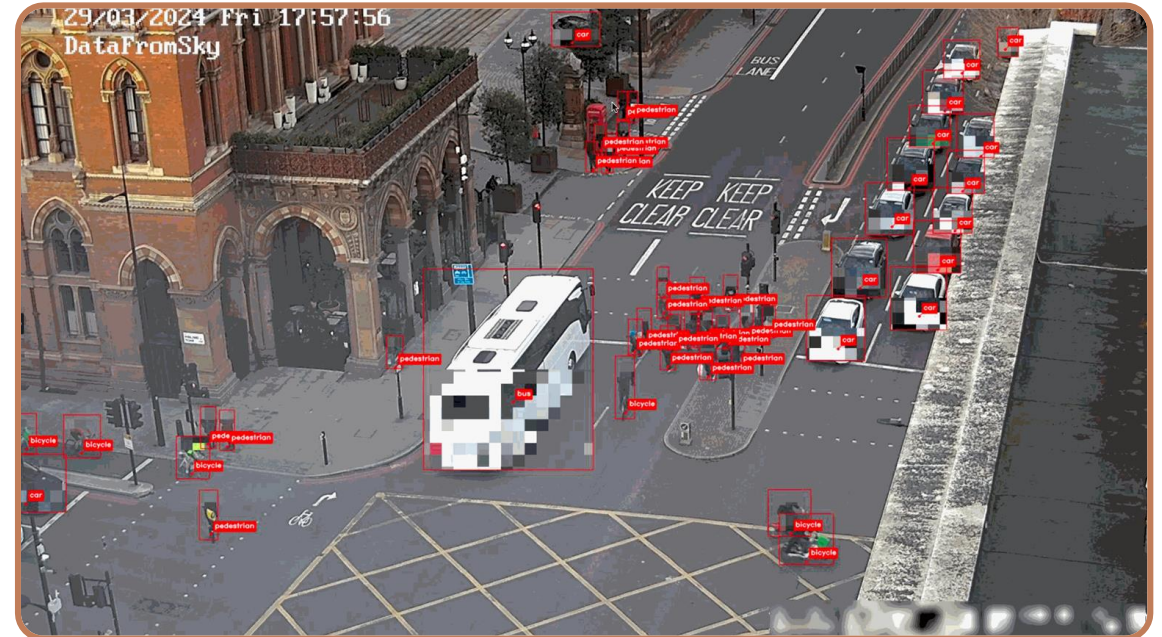
Debuting at Intertraffic 2024, Nx Go transforms video, lidar and sensory infrastructure into powerful real-time data to redefine urban and transportation management. By unifying these visual resources as intelligent sensors, Nx Go generates data for connected vehicles and smarter city planning and operations.

Unstructured video to realtime, structured data

How do commodity cameras provide data?

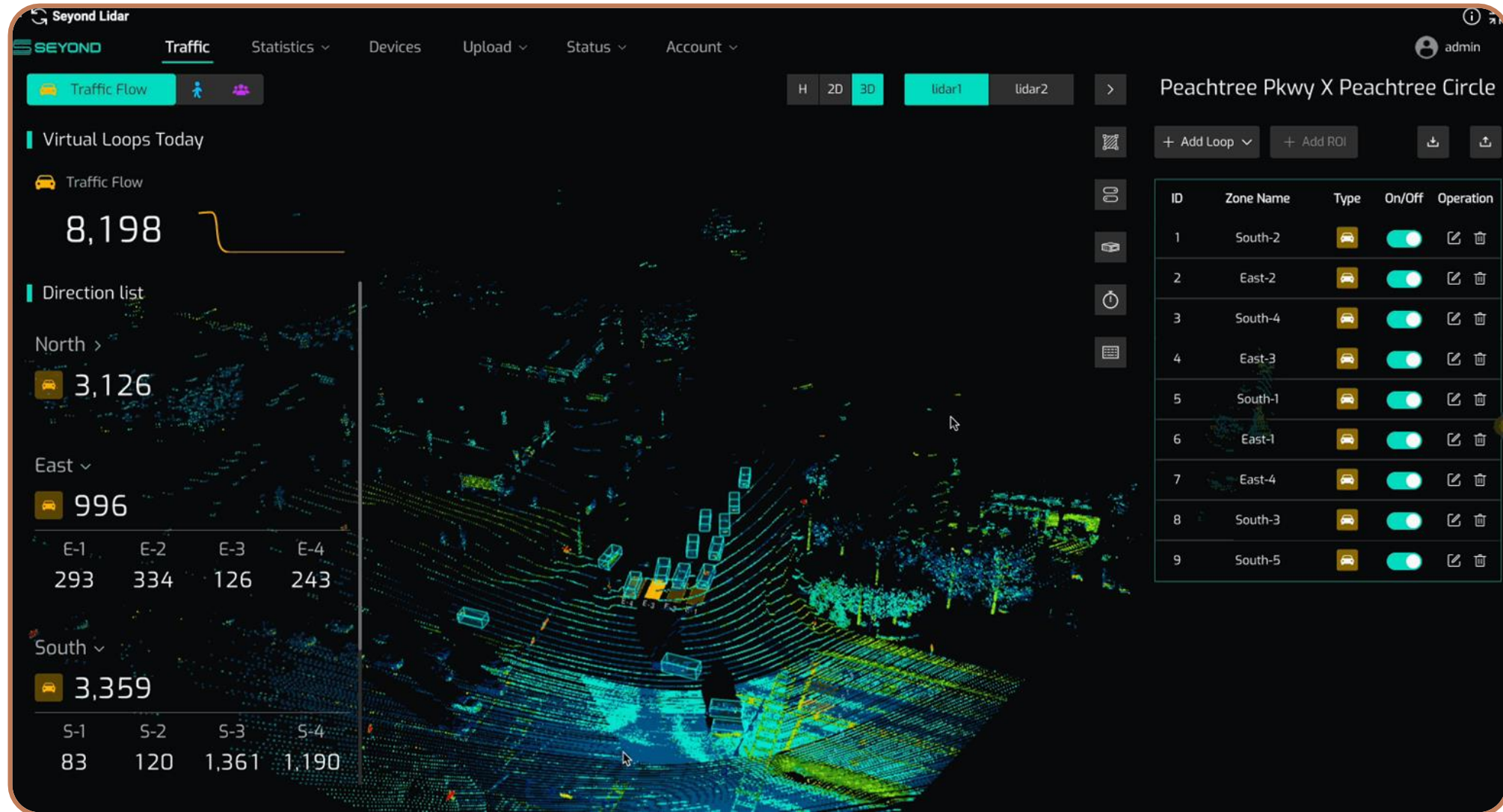
- Challenges

- Many different brands, proprietary systems
- Video is unstructured, so must apply AI
- Maps are critical and calibration of the video provides GPS position of objects.
- Network traversal to view, manage maintain network
- Data generated must be communicated locally
- Communication of data via NTCIP to local systems



Lidar and V2X

- Lidar
 - Better accuracy
 - Automatic object positions
- Nx Go
 - Traverse network to easily connect
 - View point cloud
 - Unify data model
 - Fuse with camera data



Key Capabilities of Nx Go



Unifies existing video resources as sensors

Combines various video feeds into a unified data source



Generates real-time, actionable data

Extracts meaningful insights from video in real time



Seamlessly integrates with any system

Works with diverse systems to maximize utility

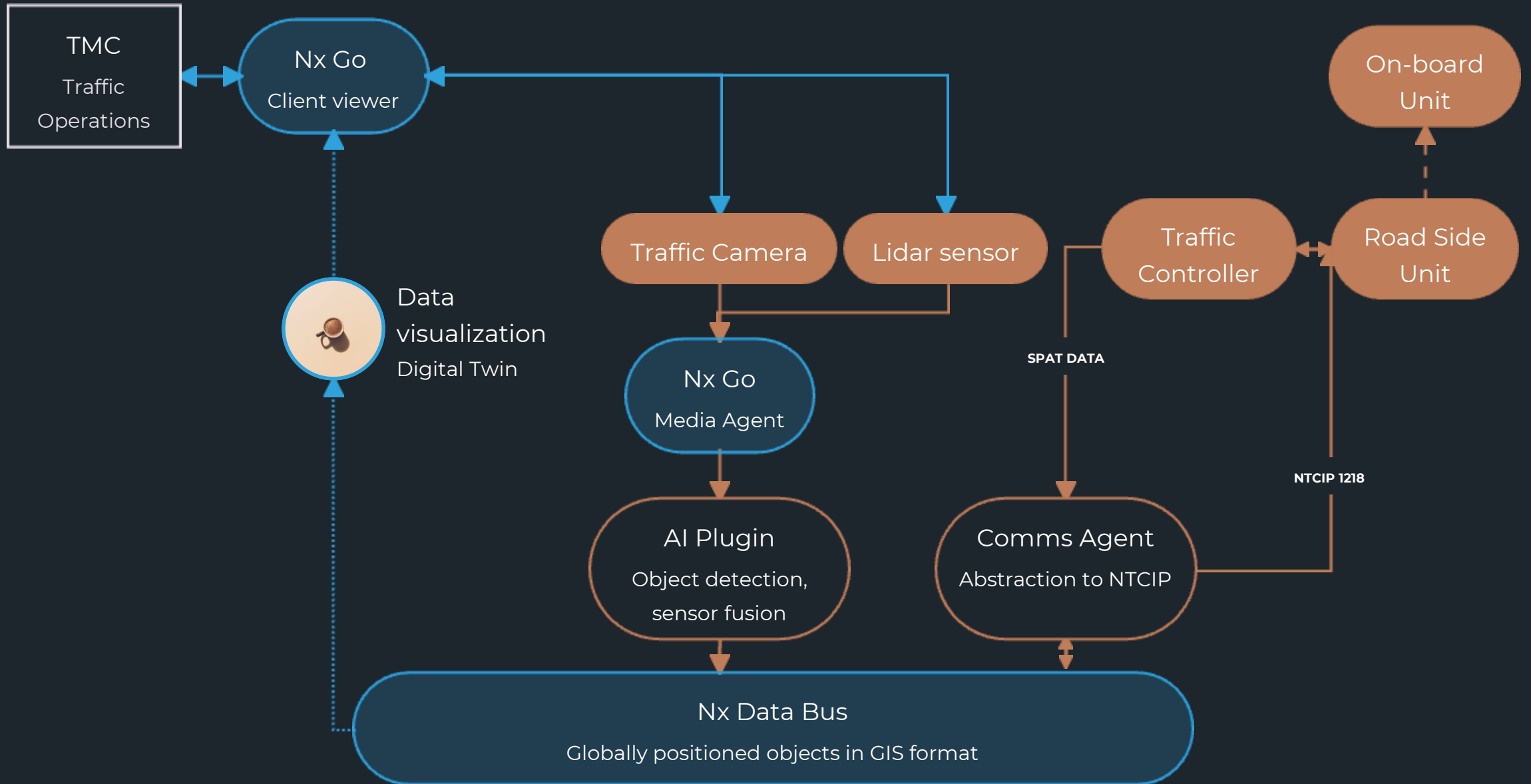


Enhances visualizations and digital twins

Improves operational views and digital replicas

Nx Go transforms existing infrastructure into an intelligent data source for advanced mobility and transportation management.

V2X Methodology





Conclusion

Nx Go provides a unified visual data platform that leverages existing video and sensor networks to generate real-time data for smarter transportation management. By structuring unstructured video feeds into an open format, Nx Go empowers V2X systems at scale.



THANK YOU

Randell Iwasaki

President & CEO

Iwasaki Consulting Services Inc

rhiwasaki@gmail.com



Randell Iwasaki



[@riwasaki2](https://twitter.com/@riwasaki2)