

Symphony as enabler for green mobility

Intertraffic – April 2024

Jason Lu

Solutions Lifecycle Manager



Jason Lu (before)
Solutions Lifecycle Manager

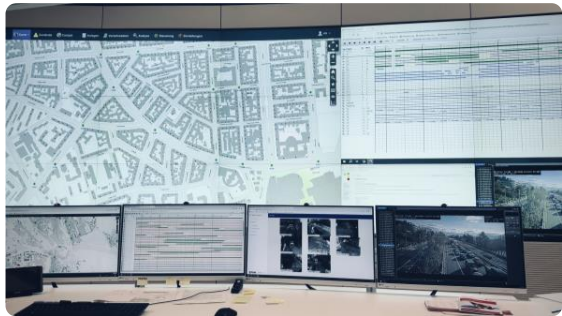








Primary users of the current Scala/Concert system



Yutrafic Scala / Concert

for



Service technicians

System configuration and maintenance
Device management
Signal plan imports



Traffic engineers

Signal monitoring
Signal quality management
Traffic management strategies



Traffic management operators

Traffic management
Incident management
First response coordination

in



Small cities

Signal monitoring
Parking management
System monitoring



Large cities

Actuated signal control
Automatic rerouting
Environ.-sensitive traffic mgmt.



Regions

Traffic information
Incident management
Data platform

50.000

signal controllers

700.000

detectors

16.000

variable message signs

9000

parking facilities and parking signs

3500

roadside units

240+
systems worldwide

Wiesbaden, Germany

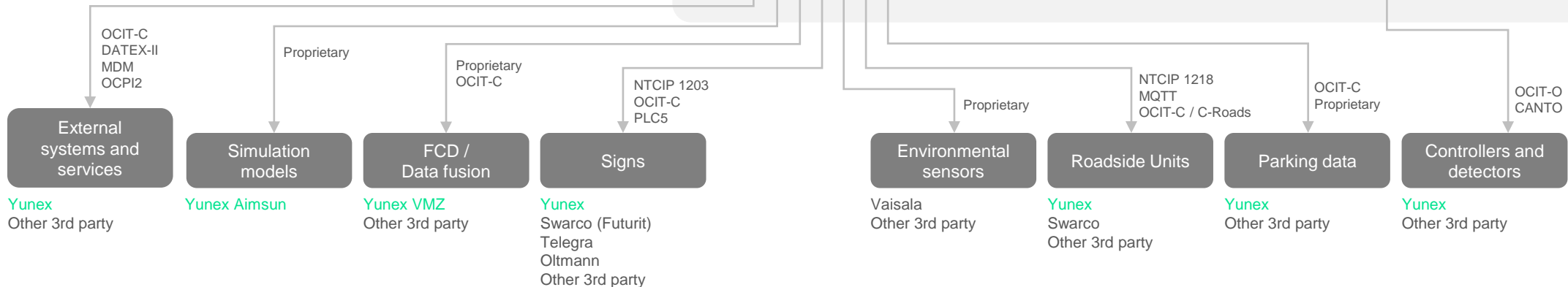
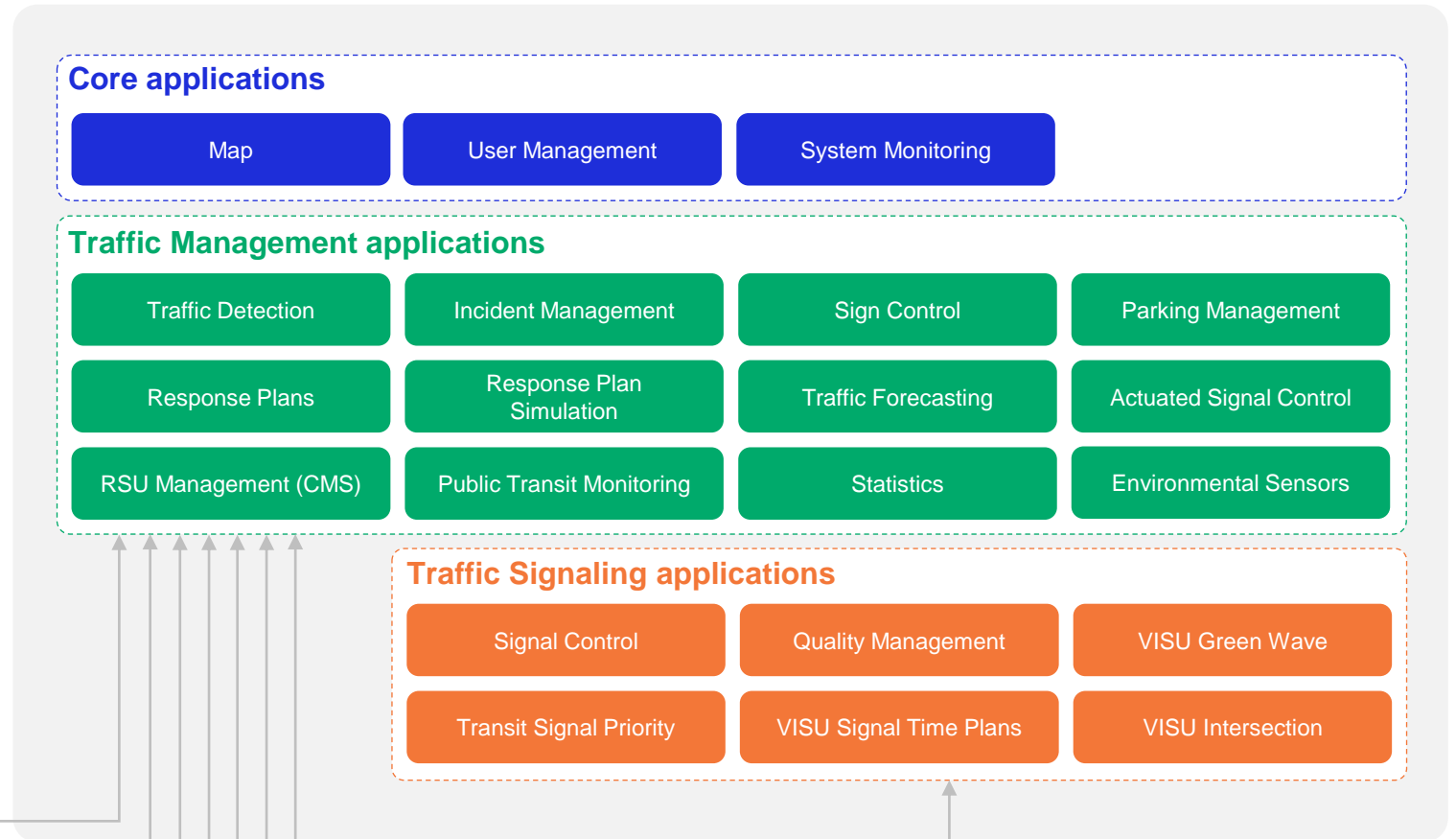
Clean air zone with traffic flow metering

Traveler information with signs

Air quality monitoring

Traffic forecasting for proactive control

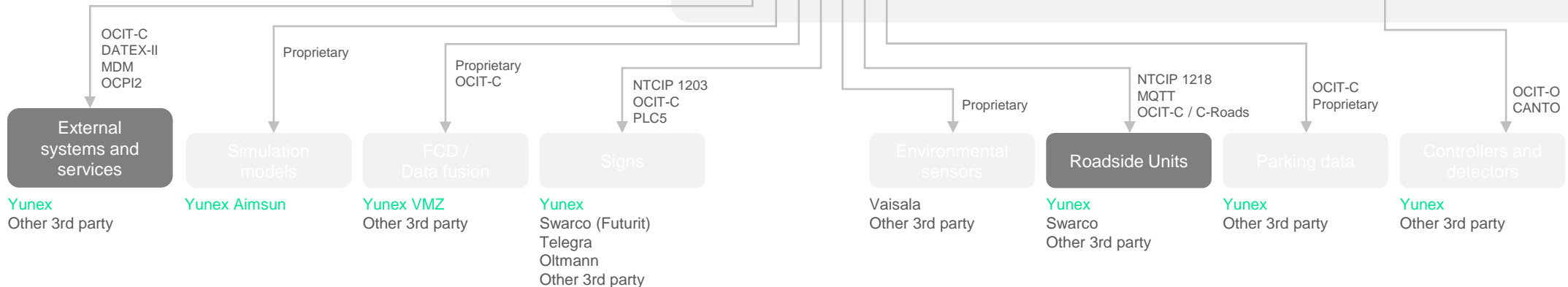
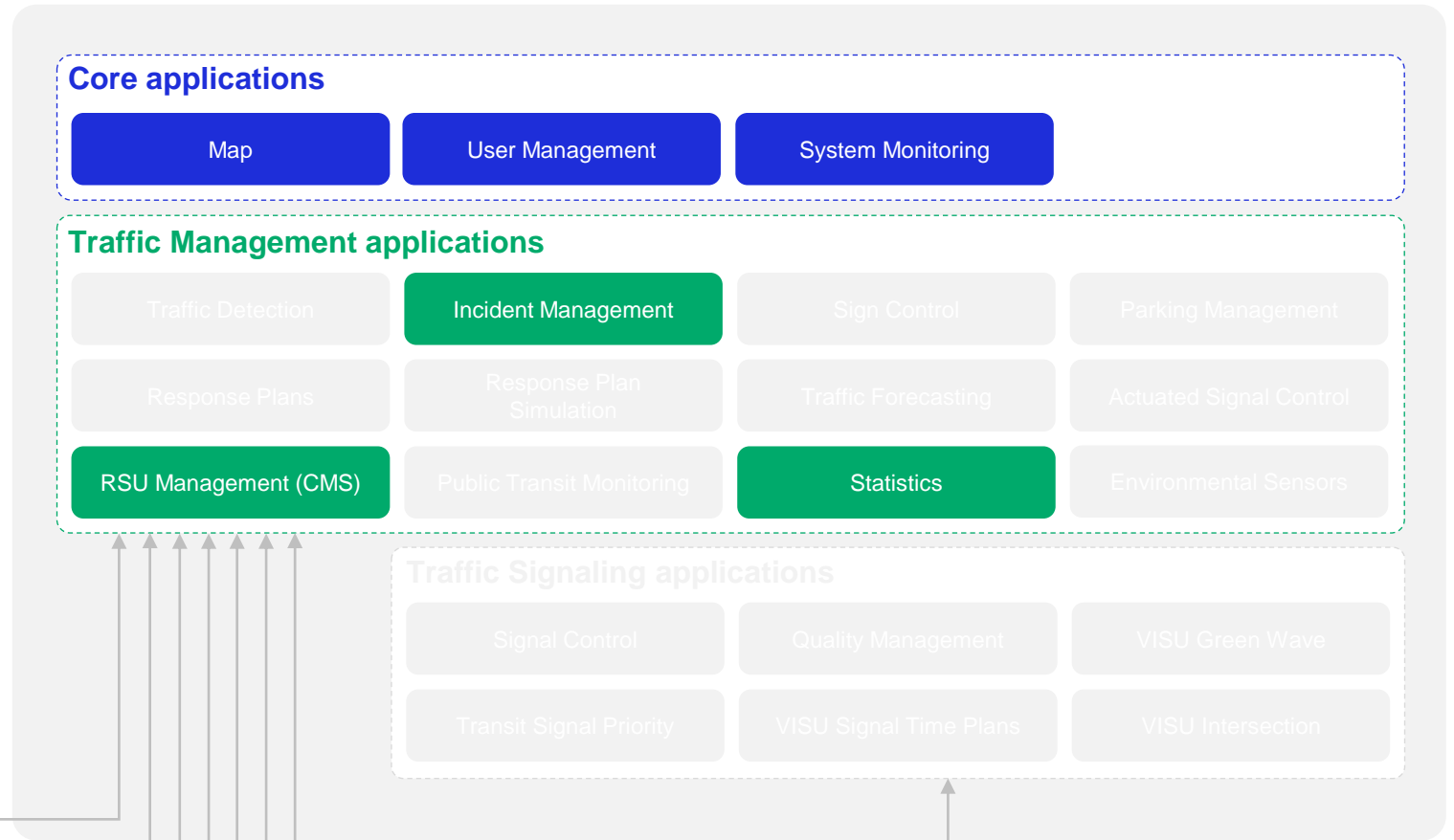
Response plan scenario simulation



Asfinag, Austria

Incident mgmt. with V2X warnings (DENM)

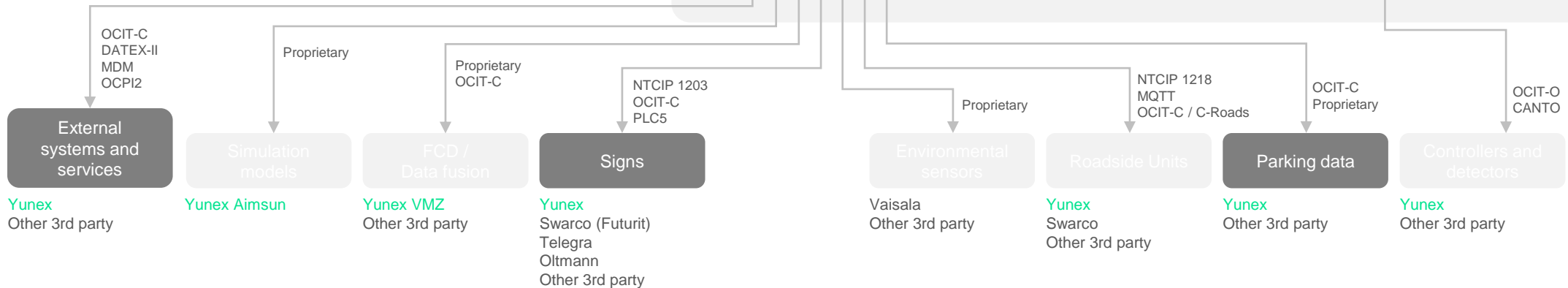
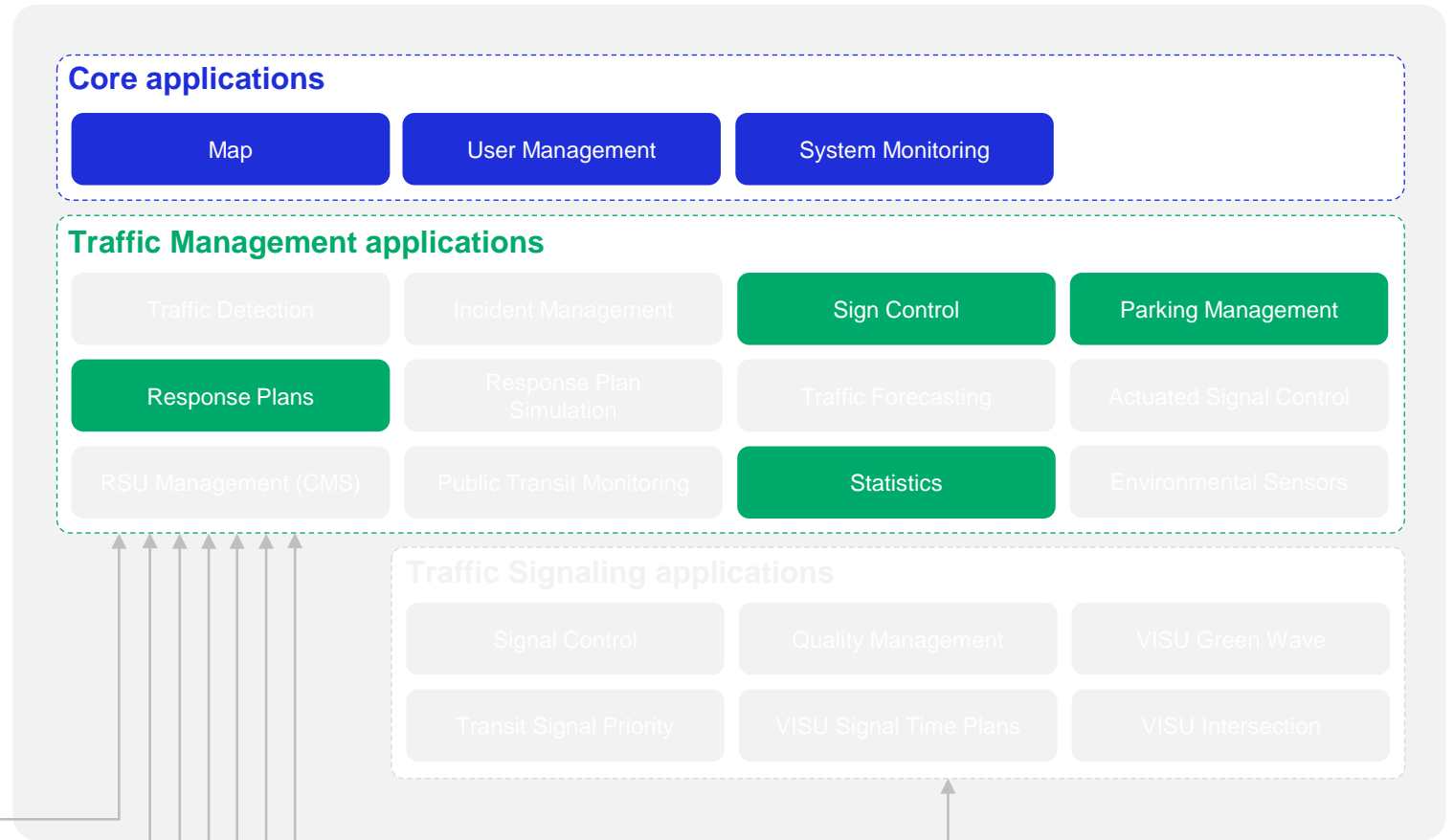
Driver information with V2X virtual signs (IVI)



Leuven, Belgium

Parking guidance and data collection

Cloud deployment



New challenges

Customers and stakeholders



Technicians/Engineers/Operators

Increase **Productivity** by improving workflows and usability

“Powerful system that does much more than others, but also complex.”



IT departments

Increase **Cybersecurity** and comply with regulations

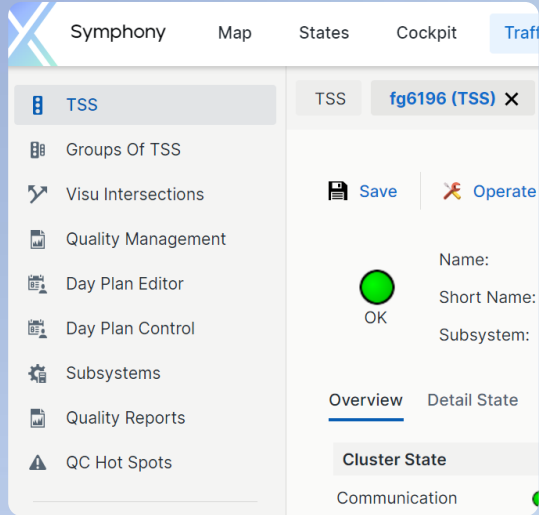
“25% of high-risk CVEs were exploited on the day of publication, while 75% of vulnerabilities were exploited within 19 days.” (Qualys)



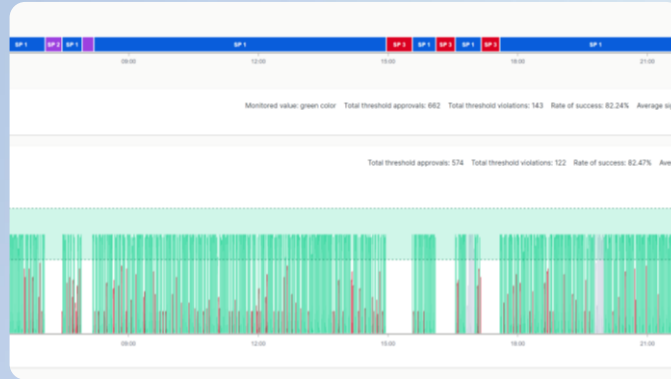
Mayors, planners

Increase **Sustainability** by prioritizing green transport modes

“Improve air quality, maximize use of existing infrastructure and shift funding towards sustainable mobility.”



Streamlined navigation

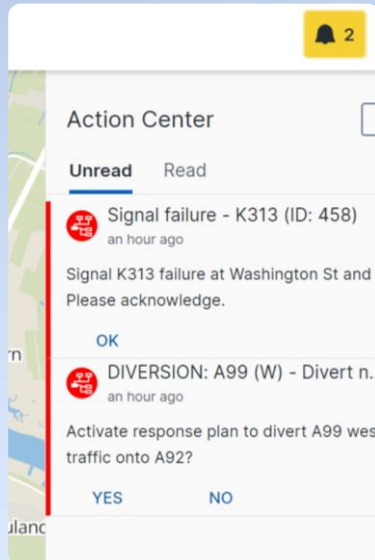


New signal quality monitors

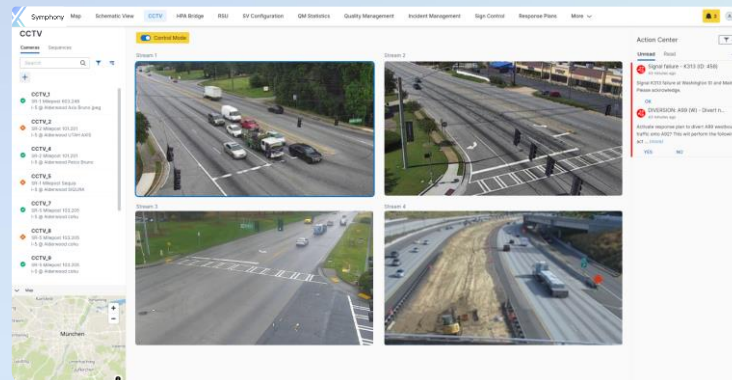
Gesamtqualität	LSA Zustand	Freigabezeiten	Anforderungswartezeit	Maximale Zusta
Details anzeigen	F F F	A A F	A A A	A A A
Details anzeigen	A F F	A F F	A A A	A A A
Details anzeigen	S F F	A F F	A A A	A A A
Details anzeigen	C F F	A F F	-	-
Details anzeigen	E O D	A F F	A A A	A A A
Details anzeigen	E F F	A A A	A A A	A A A
Details anzeigen	S F F	A A A	A A A	A A A
Details anzeigen	E F F	A F F	A A A	A A A
Details anzeigen	-	A F F	A A A	A A A
Details anzeigen	E E F	A A F	A A A	A A A
Details anzeigen	D F F	A A F	A A A	A A A
Details anzeigen	-	A F F	A A A	A A A
Details anzeigen	D D F	A F F	A A A	A A A
Details anzeigen	E F F	A F F	A A A	A A A

New signal quality overviews

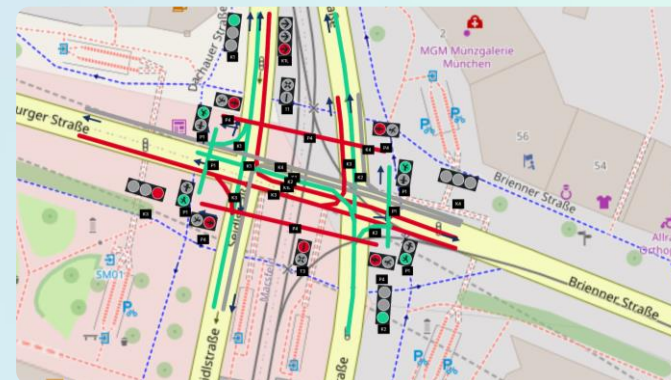
Symphony



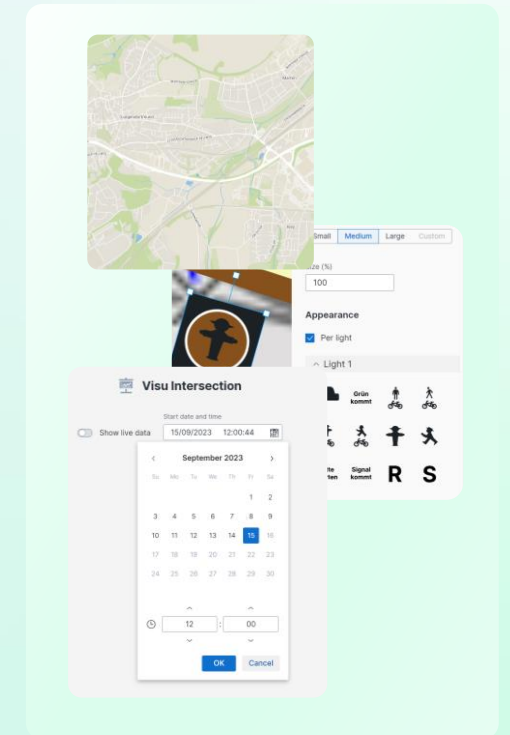
Action Center



CCTV module and more integrated devices



New intersection displays



New design language

Symphony



Technicians/Engineers/Operators

Productivity

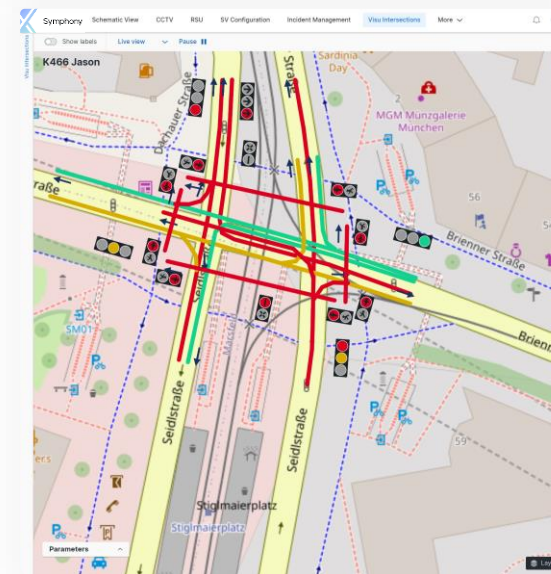
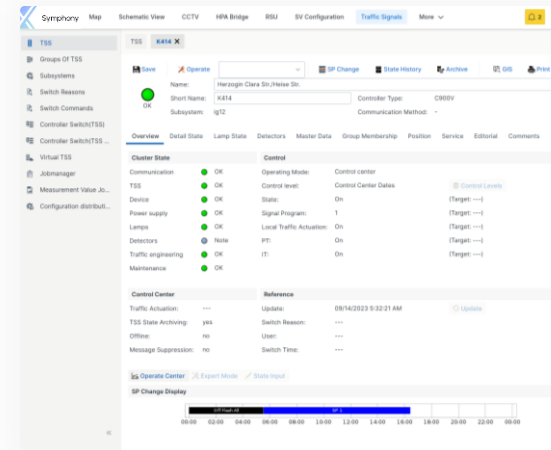
One open platform for all with improved usability

New applications for traffic signal operations

3rd party application integration

Native real-time traffic simulation

Up to 5x faster loading times



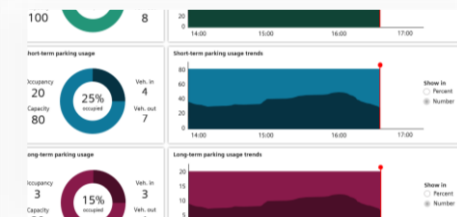
Replace up to

6

3rd party systems

6

new applications



The Action Center notification reads: "DIVERSION: A99 (W) - Divert n... 2 minutes ago". The description states: "Activate response plan to divert A99 westbound traffic onto A92? This will perform the following actions: Turn on VMS 099vm16343 to show 'DIVERSION: Nürnberg via A92', turn on VMS 099vm16025 to show 'DIVERSION: Nürnberg via A92', activate incident 'DIVERSION: Nürnberg via A92'. (less)". The notification includes 'YES' and 'NO' buttons.

Symphony



IT departments

Cybersecurity

Public cloud, private cloud, and on-prem

Continuous system monitoring

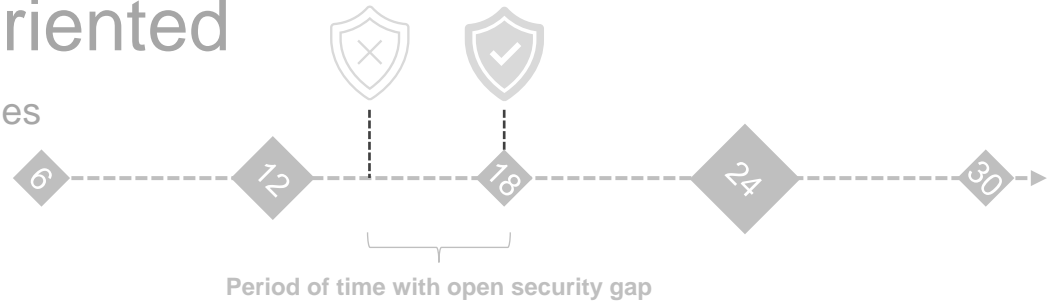
Proactive vulnerability scanning

Continuous vulnerability patching

Supporting documentation for audits

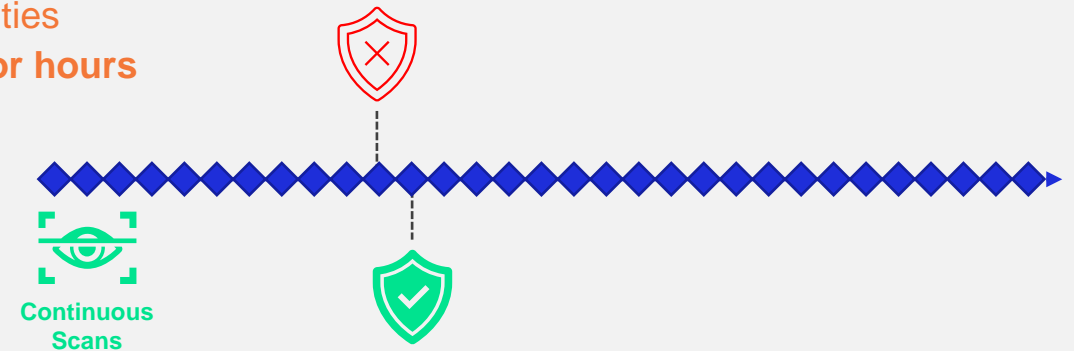
Interval-oriented

Critical vulnerabilities
patched in months



Event-oriented through CI/CD

Critical vulnerabilities
patched in **days or hours**



Symphony



Mayors, planners

Sustainability

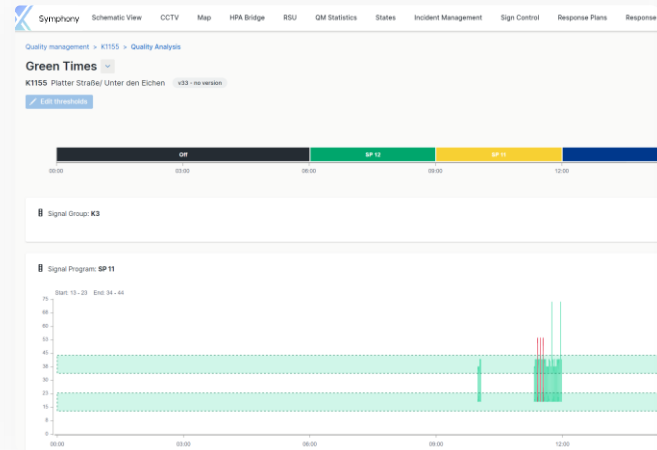
Next-generation traffic management

Maximize use of available road space

Repurpose funds for sustainable mobility projects

Accelerate shift towards sustainable mobility

Better air quality through simulation and ETM



10% - 20%
reduction¹ in
public transport travel times

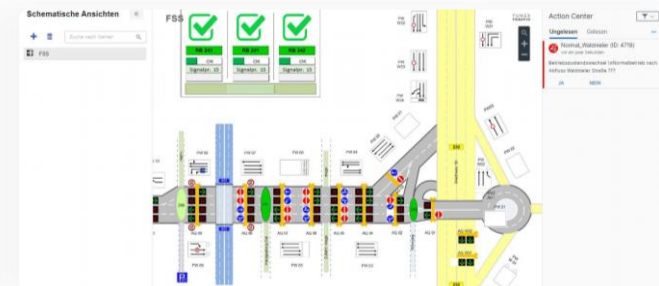
12%
reduction² in
CO2 emissions

1/20th
of cost³ to implement reversible
lanes compared to widening

Settings

Regions **Quality classes**

Quality analysis	A	B	C	D	E	F
Green Times	98.70	75.00	60.00	9.00	5.00	0.00
Demand Wait Time	95.00	70.00	70.00	50.00	25.00	0.00
Maximal Signal Dur...	95.00	80.25	70.00	50.00	25.00	0.00
Aggregated Signal ...	95.00	80.25	70.00	50.00	25.00	0.00
Detector Trigger	95.00	81.00	70.00	50.00	25.00	0.00
PT Trigger	95.00	80.00	70.00	50.00	26.00	0.00
PT Travel Time	95.00	80.00	70.00	50.00	25.00	0.00



1. Priemer, C., et al.; H Bevorrechtigungsmaßnahmen ÖPNV, FGSV, Köln, 2018
 2. Hicks, B.; Carter, M.: What have we learned about intelligent transportation systems? – Arterial Management. US Department of Transportation/Federal Highway Administration, 2000
 3. Rathbone, Daniel B.: Improving the Cost-Effectiveness of Urban Freeways Through Flexibility in Operations and Design, 2017

Symphony 1.0

Summer 2024

Symphony is the next generation of our mobility management platform

Current

All markets

- **Scala**
Traffic signal control
- **Concert**
Traffic management
- **CMS (Connected mobility system)**
V2X use cases
- **Guide**
Parking
- **smartGuard**
Cloud-based traffic signal control system



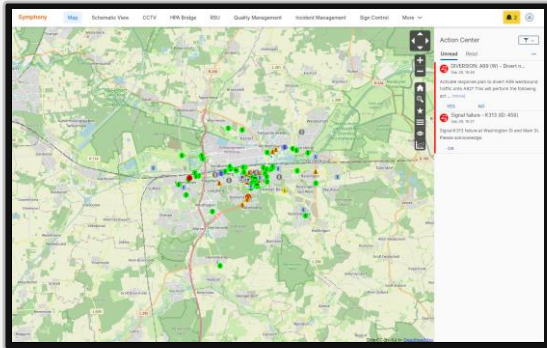
Future

All markets except US

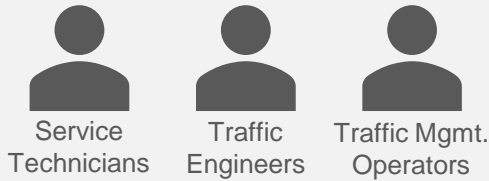
- **Symphony**

United States

- **Studio**



Symphony



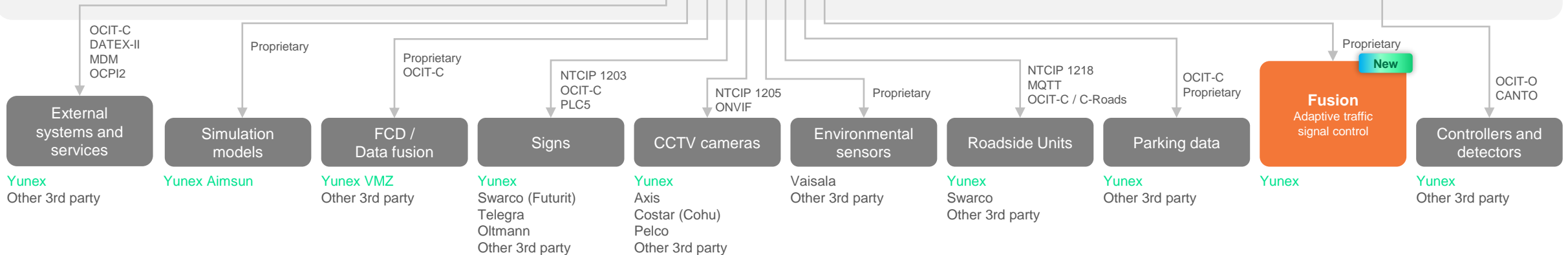
Core applications



Traffic Management applications



Traffic Signaling applications



Symphony



Technicians/Engineers/Operators

Productivity

- One open platform for all with improved usability
- New applications for traffic signal operations
- 3rd party application integration
- Native real-time traffic simulation
- Up to 5x faster loading times



IT departments

Cybersecurity

- Public cloud, private cloud, and on-prem
- Continuous system monitoring
- Proactive vulnerability scanning
- Continuous vulnerability patching
- Supporting documentation for audits



Mayors, planners

Sustainability

- Next-generation traffic management
- Maximize use of available road space
- Accelerate shift towards sustainable mobility
- Better air quality through simulation and ETM
- Repurpose funds for sustainable mobility projects

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Q&A

Jason Lu

Solutions Lifecycle Manager

jason.lu@yunextraffic.com

See you
at our booth!