

BEYOND CAMERAS: BUILDING RESILIENT DIGITAL INFRASTRUCTURE FOR SAFE CITIES



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TECHNOLOGICAL EVOLUTION OF SAFE CITIES

From Reactive Surveillance

Proactive Intelligence

Autonomous Public Safety



01

TRADITIONAL

Reactive policing
and manual
processes



02

CAMERA NETWORKS

Widespread
deployment of
CCTV cameras



03

VIDEO MONITORING

Real-time
monitoring of
live video feeds



04

INTEGRATED COMMAND CENTRES

Centralized
operations and
multi-agency
collaboration



05

AI VIDEO ANALYTICS

Intelligent detection,
classification and
real-time alerts



06

PREDICTIVE INTELLIGENCE

Predict incidents,
risk analysis and
resource
optimization



07

DIGITAL TWIN

Virtual replica
of the city for
simulation, planning
and decision-making



08

AUTONOMOUS PUBLIC SAFETY

Autonomous
systems, real-time
response and
self-optimizing
public safety



SMARTER TECHNOLOGY



INTELLIGENT OPERATIONS



SAFER COMMUNITIES

THE REAL INFRASTRUCTURE BEHIND A SAFE CITY

AI is the Brain. Infrastructure is the Nervous System.



CAMERAS / SENSORS

Capture real-time data across the city



EDGE CONNECTIVITY

Connect devices reliably at the edge of the network



FIBER / IP-MPLS / 5G

High-speed, secure and resilient city-wide connectivity



EDGE COMPUTE

Process data closer to source for low latency & efficiency



DATA CENTRE / CLOUD

Centralized storage, scalability and high availability



AI & VIDEO ANALYTICS

Detect, classify, correlate and generate actionable insights



ICCC

Integrated Command & Control Center for situational awareness



POWER

Reliable power and backup for uninterrupted services



CYBERSECURITY

Secure networks, devices and data end-to-end



DATA GOVERNANCE

Privacy, standards and compliance



OPERATIONS

Monitoring, management and lifecycle operations

“

AI cannot compensate for unreliable connectivity, inadequate compute, fragmented data or weak operations.

”





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RAILTEL

A Navratna CPSE
Ministry of Railways,
Government of India

RAILTEL: THE DIGITAL BACKBONE

From Connectivity Provider to Digital Infrastructure Partner



CONNECT



OFC



IP-MPLS



Internet



COMPUTE



Data
Centres



Cloud



Edge



SECURE



NOC



SOC



Cybersecurity



OPERATE



System
Integration



O&M



Managed
Services



One Infrastructure Ecosystem for
MISSION-CRITICAL GOVERNMENT APPLICATIONS



SAFE CITIES



SMART MOBILITY



e-GOVERNANCE



DIGITAL INDIA



HEALTHCARE



EDUCATION



INDUSTRY 4.0



SUSTAINABLE
CITIES



DELHI SAFE CITY

MPLS + Internet connectivity



- ✓ End-to-end MPLS & Internet connectivity
- ✓ Connectivity across multiple Police Stations & field locations
- ✓ Enabling CCTV surveillance, real-time monitoring & public safety



PUDUCHERRY SMART CITY

ICCC + Smart City ecosystem



- ✓ ICCC
- ✓ Data Centre / DR
- ✓ Intelligent Traffic Management
- ✓ Smart Parking
- ✓ CCTV
- ✓ Wi-Fi
- ✓ Air Quality Monitoring
- ✓ City applications



PIMPRI-CHINCHWAD SMART CITY

City Network Infrastructure



- ✓ Citywide telecom network infrastructure
- ✓ OFC & duct network
- ✓ Network Operation Centre
- ✓ Operations & Maintenance
- ✓ Leasing & monetisation of spare ducts and poles
- ✓ Connectivity to smart city elements (PCMC, PCSCL & Police)



NASHIK-TRIMBAKESHWAR CITY NETWORK BACKBONE

City Network Backbone



- ✓ City network backbone
- ✓ OFC infrastructure
- ✓ Installation & commissioning
- ✓ Operations & Maintenance



JAMMU SMART CITY

ICCC-DC Infrastructure



- ✓ Data Centre & Disaster Recovery Centre
- ✓ Integrated Command and Control Centre (ICCC)
- ✓ High-availability IT infrastructure for smart city operations
- ✓ Installation, commissioning & O&M



KAVARATTI SMART CITY

ICCC Implementation



- ✓ Selection of Master System Integrator for ICCC
- ✓ Integrated command & control ecosystem
- ✓ O&M



KAKINADA SMART CITY

ICCC Operations & O&M



- ✓ SITC of existing Integrated Command Communication Centre (ICCC)
- ✓ Operations & Maintenance



One infrastructure backbone powering safer, smarter and more resilient cities



WHAT WE LEARNED FROM THE FIELD

A SAFE CITY IS AN INTERDEPENDENCY PROJECT

A Safe City comes to life only when every dependency works in harmony.

- ✓ Power and field infrastructure must be ready.
- ✓ Fiber and network must be resilient and available.
- ✓ Technology must be reliable and interoperable.
- ✓ Integration must enable data and intelligence flow.
- ✓ NMS visibility must ensure real-time awareness.
- ✓ Multiple stakeholders must collaborate seamlessly.



THE WEAKEST DEPENDENCY CAN BECOME THE STRONGEST CONSTRAINT.



FROM VIDEO TO ACTION

THE JOURNEY FROM A CAMERA TO A DECISION

SENSORS / CAMERAS



Capturing real-time situational awareness across the city

CAPTURE



Video & data captured from cameras / sensors

CONNECT



Connected at the edge via switches, gateways and access points

TRANSPORT



Secure transport over Fiber / IP-MPLS / 5G across the network

ANALYSE



AI/Analytics processes video to detect events and anomalies

CORRELATE



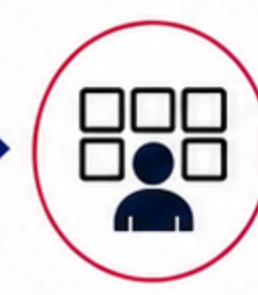
Events correlated with multiple data sources & contextual info

ALERT



Actionable alerts generated with prioritization

DECIDE



ICCC operators assess and take informed decisions

RESPOND



Field response teams act quickly and situation is resolved

REAL-TIME MONITORING & FEEDBACK LOOP

EXAMPLE: CROWD ANOMALY DETECTION & ALERT



1. Cameras detect crowd in public area



2. AI analyzes density, movement & behavior



3. Secure network transports event data in real-time



4. Platform correlates with context (location, time, events, sources)



5. ICCC generates high-priority alert



6. Response team deployed to manage situation

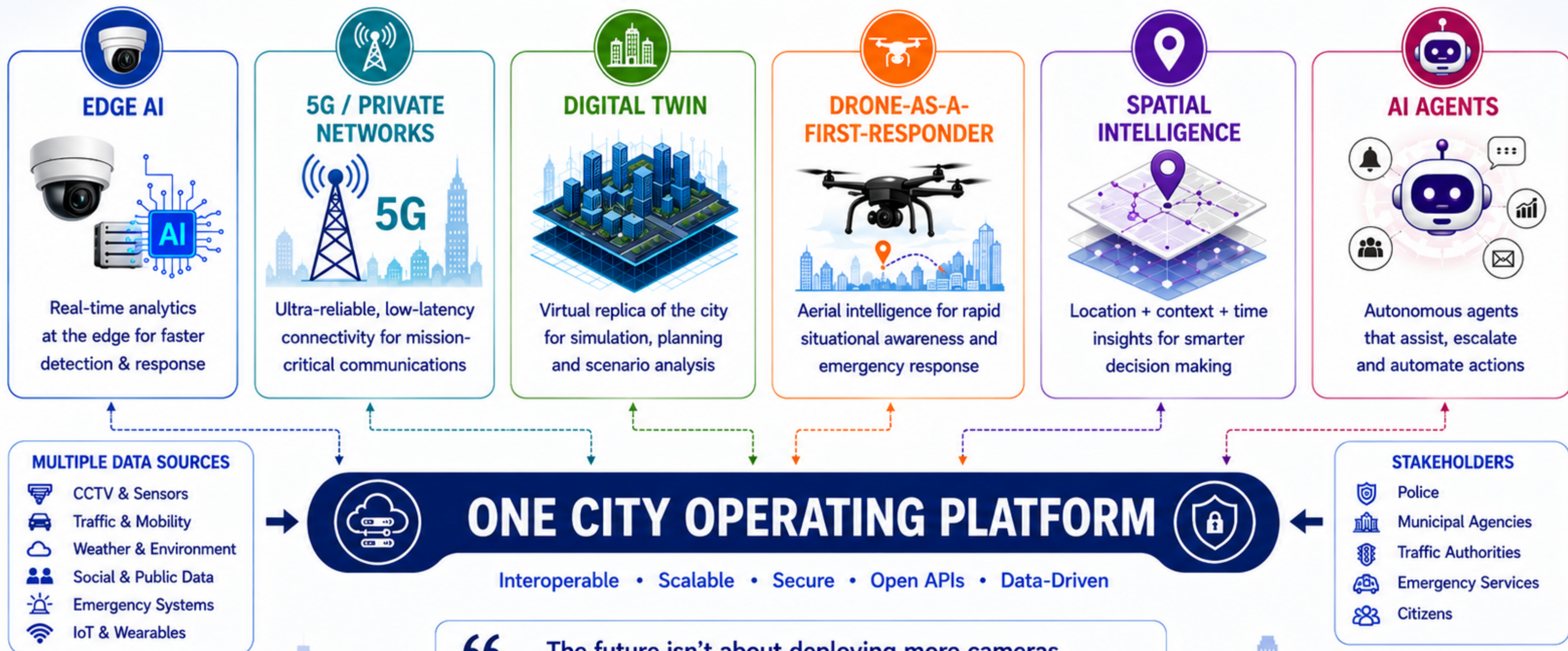
“

The value of a camera is not the video it generates.
It is the decision it enables.

”

WHAT THE NEXT SAFE CITY LOOKS LIKE

The Next Safe City Will Be Connected, Context-Aware & Predictive



“ The future isn’t about deploying more cameras.
It is about connecting more sources of intelligence. ”



A Navratna CPSE
Ministry of Railways, Govt. of India

India's Leading Telecom
& Digital Infrastructure Provider

BUILDING INDIA'S FUTURE. ONE CONNECTION AT A TIME.

Smart Infrastructure. Intelligent Systems. Safer Tomorrow.

“

*The future of Safe Cities will not be built by cameras alone.
It will be built on resilient connectivity, trusted data, intelligent systems
and coordinated human response.*”



11,000+

PoPs Across India

One of India's largest
neutral telecom
infrastructure networks



63,000+

Route Km OFC

Pan-India optical
fibre network



70%+

India's Population Covered

Network reaching important
towns, cities & rural areas



2

Tier-III Data Centres

Gurugram &
Secunderabad



**PAN INDIA
PRESENCE**

Network infrastructure
across India



ONE INFRASTRUCTURE. ONE PLATFORM. ONE PURPOSE – **A SAFER, SMARTER INDIA.**

