

ROME 5G: MAKING THE ETERNAL CITY A SMART PLACE

How we are bringing 5G and Wi-Fi
to one of the world's most spectacular
and visited cities.





Summary

Rome: one of the great global cities. A population of 4.3 million¹. And a cultural heritage dating back over 3,000 years². Few places are so recognisable: its Colosseum is one of the most iconic landmarks on earth, and just one of hundreds of cultural highlights attracting millions of tourists each year.

But it's been hard for the city to keep pace with the demand for connectivity. Not just from citizens, but also from a boost in visitors: something already impacting mobile operators' economics.

And with 2025 nominated as a Vatican Jubilee year, Rome will welcome an additional influx of guests: around 35 million. That's more than twice the already large number in a typical year³.

They all expect digital connectivity. So as part of the Italian capital's Jubilee plan, the Municipality of Rome is partnering with Boldyn Networks to bring ubiquitous 5G and Wi-Fi to the Eternal City.

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‘With this project, we are taking Rome into the future – by building a safe, inclusive and sustainable city, with increasingly efficient public services tailored to citizens, tourists and businesses’ needs.’

Roberto Gualtieri, Mayor of Rome

1. www.worldpopulationreview.com/world-cities/rome-population
2. <https://www.britannica.com/place/ancient-Rome/Romes-foundation-myth>
3. <https://www.osservatoriopnrngiubileoroma.it/giubileo-2025-turismo-in-crescita-ma-sfide-da-affrontare/>

Future-proofing Rome's connectivity

Such a huge influx of visitors puts a massive strain on already-struggling mobile infrastructure.

Connectivity is taken for granted. Visitors to landmarks like St Peter's Square expect to be able to videocall friends and family back home without hitches. But for the average tourist, there's little understanding – and less tolerance – of the technical demands this can place on a network. They're not thinking about 'densification', and don't see connectivity glitches from the perspective of an over-burdened mobile network operator. For visitors, problems with making calls and getting online can rub off as major gripes about Rome.

With previous investment plans not keeping pace with demand, city officials sought out a partner with the proven ability to bring connectivity to a major urban centre. And as urban centres go, Rome is almost unique. It has thousands of years of history, and is in large part a protected UNESCO world heritage site⁴. This presents its own special challenges.

But with transformative projects in New York and London already on our resumé, it was natural Rome's officials would choose Boldyn Networks.



The connectivity goal

100 public squares

83 metro stations

68 kilometers of tunnels

2,206 small cells

2,000 cameras

1,834 IoT modules

4. <https://www.visititaly.eu/unesco/the-historic-centre-of-rome-the-second-unesco-world-heritage-site-in-italy>

The challenge

A unique location presents a unique set of challenges.

Connecting a UNESCO World Heritage city

Bringing 5G and Wi-Fi to ancient alleys and cobbled squares presented its own special challenges. Piazzas like Campo de' Fiori can't be pulled up like a patch of tarmac. And tall mobile masts aren't really appropriate: they could be said to jar against the city's classical aesthetic. So throughout Rome, considerations to do with architectural preservation and beauty demanded a more tactful approach.

Solution:

Rather than installing large masts, we're using over 200,000 existing lamp-posts and about 3,000 bus shelters as mounting points for 5G cells. Small and unobtrusive, these provide a high-speed, low latency network. Paving the way for technologies like smart grid energy systems, driverless delivery vehicles, and even delivery drones.

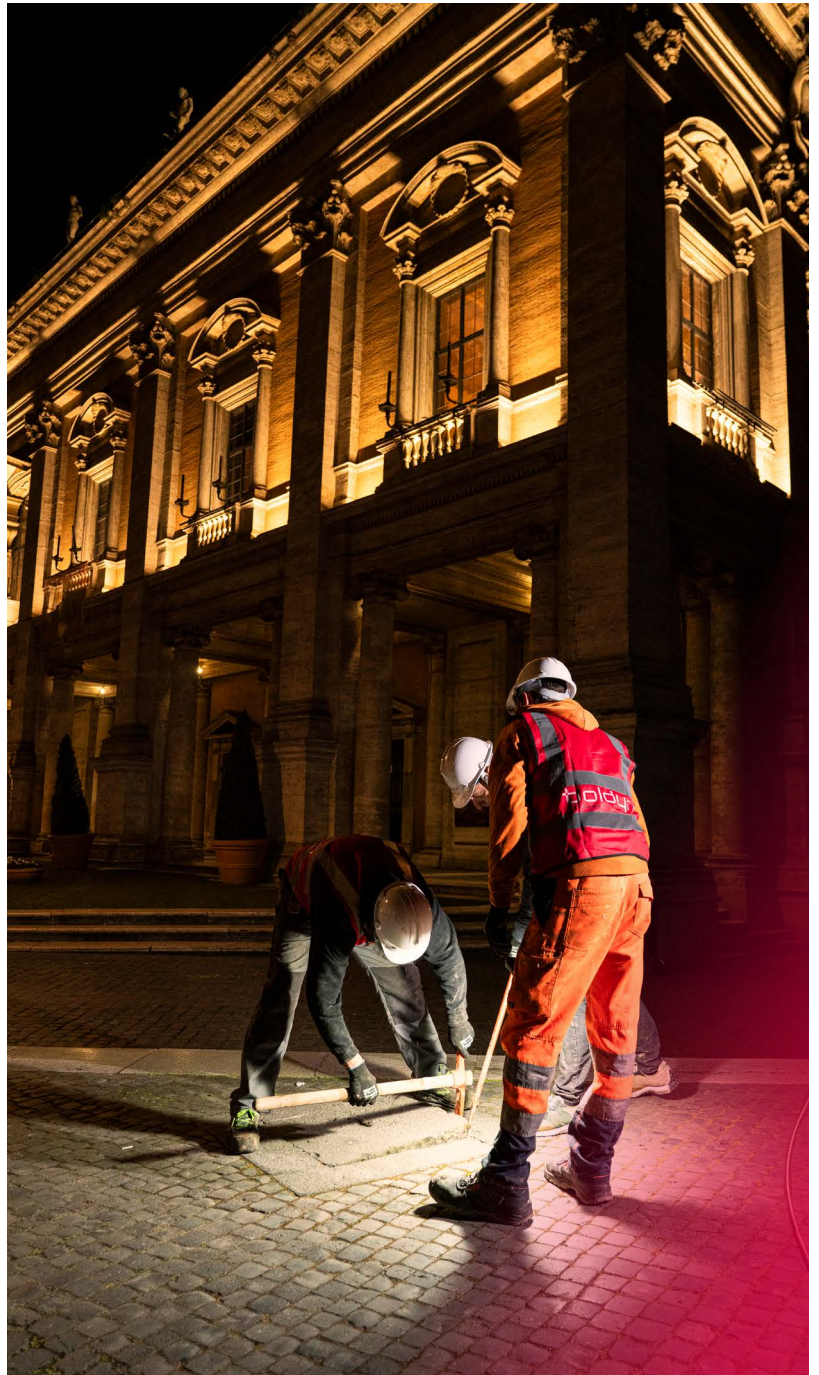
Transformational technology. With minimum disruption.

A busy city must be able to function. The work we're conducting in Rome cannot get in the way of daily activity.

Tourists, too, want to enjoy their visit without noise, dust and disturbance.

Solution:

Our engineers work through the night to make 'Roma 5G' a reality.



The smart place solution, from Boldyn

We've signed a 25-year agreement with the Rome Municipality to create game-changing neutral host infrastructure.

Working in a public-private partnership, we're introducing citywide Wi-Fi – installing 850 'points of presence' to Rome's 100 most popular piazzas. 2,206 small cell transmitters. 1,834 IoT modules. And 5G to all three lines of the metro.

The effect will be nothing short of transformative. Not only will Rome's 4.3 million residents – and millions more guests – be able to reliably connect to Wi-Fi and 5G: they'll also benefit from the multitude of smart applications that smart city municipalities stand to gain from.

Rome's taking strong action when it comes to narrowing the digital divide. And thanks to our neutral hosting model, Rome's mobile network operators now have a cost-efficient way to bring connectivity to all their customers.



A foundation for 'smart'

With 5G, IoT sensors and Wi-Fi in place, city authorities can begin to think smarter. Traffic management, policing, waste disposal and enterprise all stand to gain. By installing 2,000 high definition 5G cameras, Rome's leaders will be able to use machine learning to reduce road congestion thanks to signals that predict traffic patterns. Cameras give police 'eyes on' busy locations, deterring criminals and antisocial behaviour, and improving safety for everyone.



A fully connected metro system

With connectivity being deployed to Metro lines A, B and C, Rome is benefiting from 83 stations coming online. Spanning 68 km altogether, this marks a revolution in the travel experience for citizens and visitors alike, as in the past, connectivity was limited to only a handful of the larger stations such as Termini.



Fibre deployment, city-wide

We're bringing superfast fibre and Wi-Fi to 100 public squares, enabling us to provide blanket connectivity. Add in the 5G small cells in squares, streets and elsewhere, and Rome will become one of the best connected cities on earth. It's good for residents and visitors. And for businesses, too.



Security that's enabled by tech

Rome won't just soon be a smarter city: it will be an ever safer one, also. The infrastructure Boldyn Networks has installed means a smart-enabled police security centre can now be set up. City officers have already undergone training, and are testing new use-cases for smart place security.



Even Rome's rubbish is smarter

Instead of emptying bins to an unchanging schedule, IoT sensors can automatically report when they are full. So workers only travel out to bins that need emptying. Reducing fuel costs and CO₂ emissions, and eliminating overflowing bins.

Rome: our smart city model

Streetpole integration:

- Over 1,800 sensors and IoT modules
- 2,000 high-definition 5G cameras for surveillance

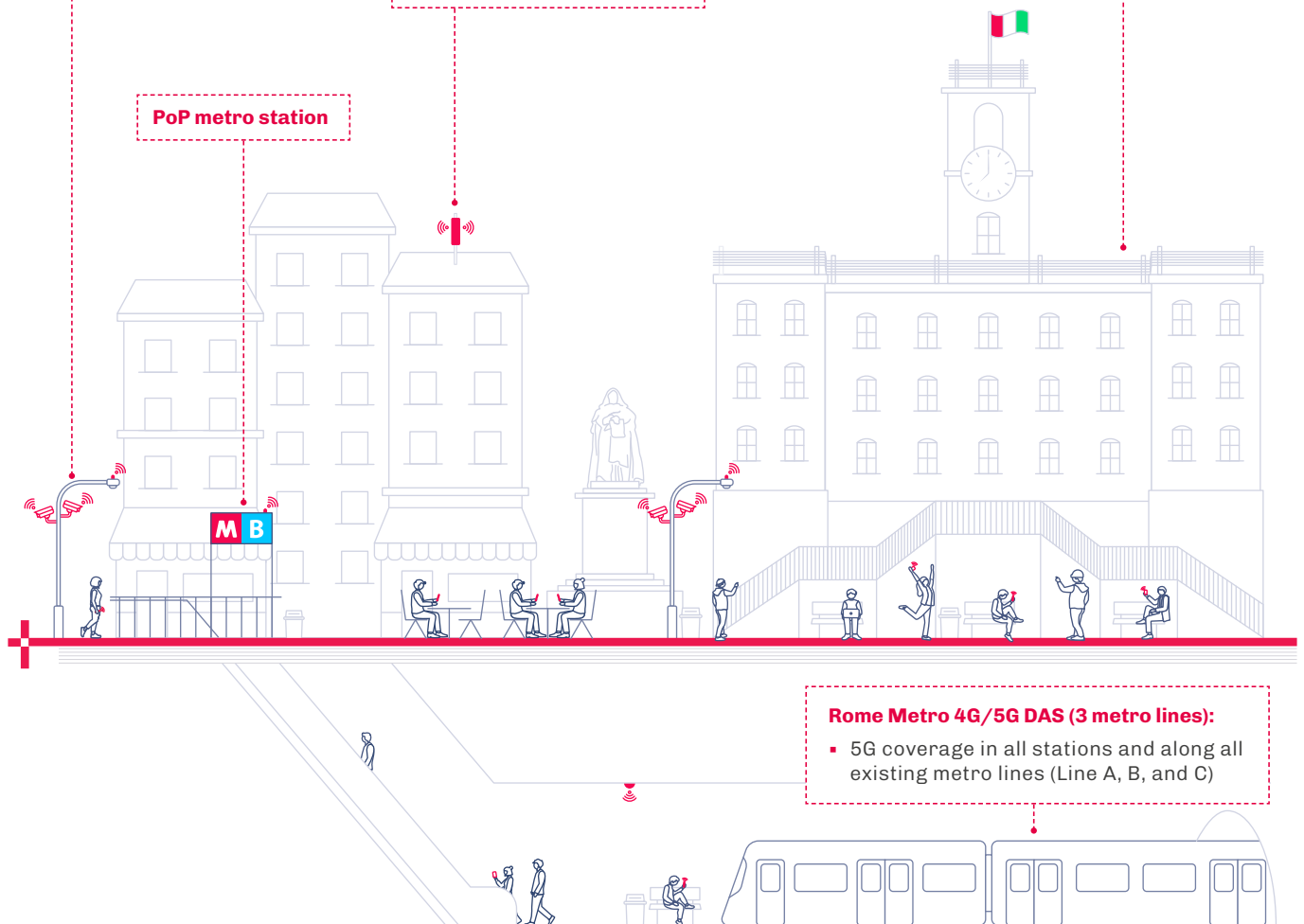
Outdoor coverage solutions:

- Network of over 2,000 5G small cells
- Free Wi-Fi 6 network in 100 public squares

Indoor coverage for public buildings:

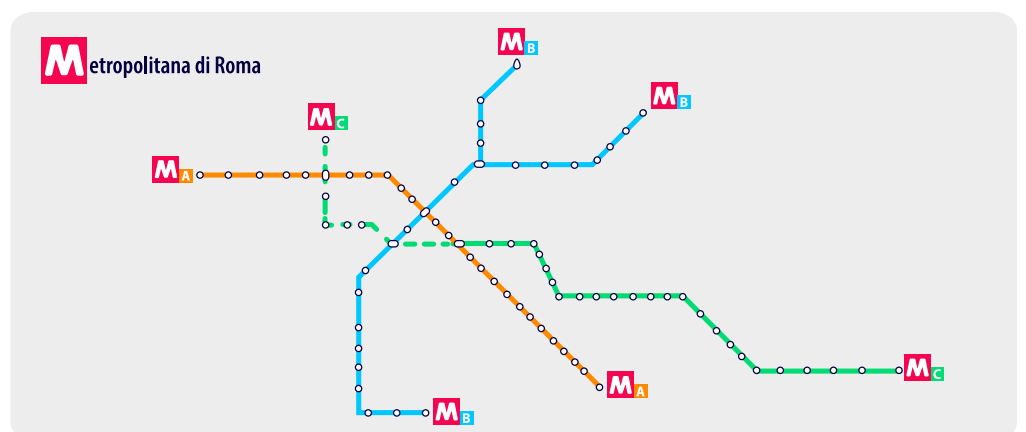
- Public administration offices, private buildings, hotels, shops, etc.

PoP metro station



Rome Metro 4G/5G DAS (3 metro lines):

- 5G coverage in all stations and along all existing metro lines (Line A, B, and C)



The result



Economic growth that's measured in millions

The arrival of state-of-the-art 5G technology and the deployment of Wi-Fi throughout Rome mean that virtual reality, augmented reality, and IoT technologies will all become possible. By extrapolating from a study in the City of London, it's estimated these technical interventions should generate commercial value to Rome in the region of 300-400 million euros per year⁵.

But it doesn't end there. By implementing 5G infrastructure, an indirect 'MNO-driven' benefit is predicted, worth around 125 million euros per year by 2025, with that figure doubling by 2030. The reason? Rome's 5G will enable the mobile network operators to increase average revenue per user by 16%-20% – since half of customers surveyed say they are willing to spend 5 euros more to have download speeds guaranteed at 300Mbps, which 5G now makes possible.



Thousands of new jobs

When 5G reaches a city, it creates potential for economic growth in areas with a high intensity of tourist flow and hospitality, as well as in those with a highly concentrated population and mass transit of workers.

This is forecast to drive growth of around 10% when it comes to employee numbers. That means the creation of about 180,000 new jobs.



A city that's as connected as it is beautiful

The goal in Rome was never about connectivity for connectivity's sake, but connectivity in the service of people.

Rome has always been a beautiful city. It will soon be a beautifully connected one, too.

Something people from all corners of the earth are sure to benefit from, as Rome celebrates its Jubilee year.



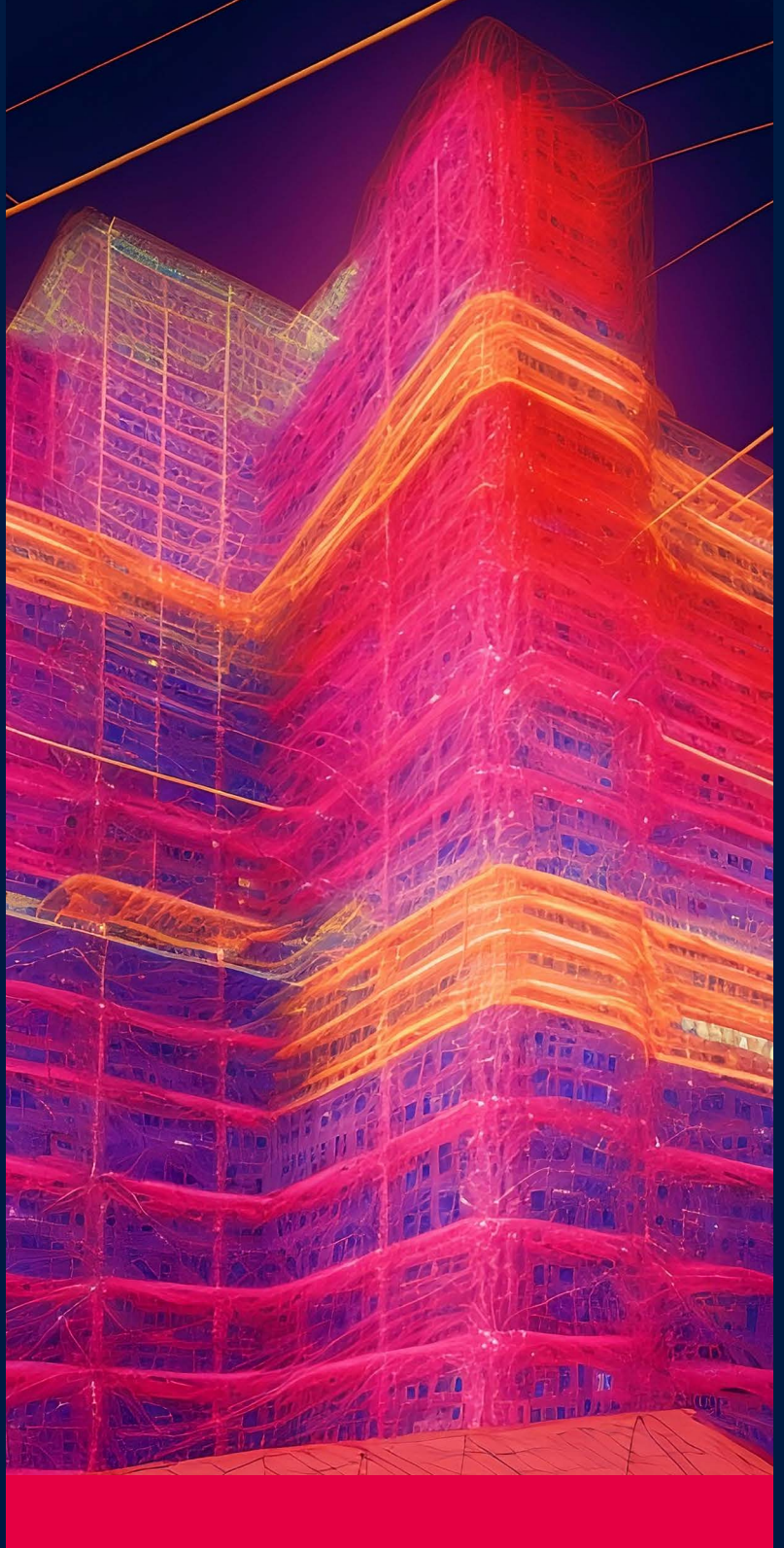
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Rome will become an even more beautiful city, because it will be ever more at the service of its people, pilgrims and tourists.’⁶

Archbishop Renato Fisichella of the Vatican

5. PPP Appendice 2 ENG.docx

6. <https://www.voanews.com/a/vatican-and-rome-begin-dash-to-2025-jubilee-with-papal-bull-construction/7605603.html#:~:text=The%20Vatican%20crossed%20a%20key,months%20of%20headaches%20to%20Romans.>



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NETWORKS

Boldyn Networks delivers the advanced shared network infrastructure needed for a smart, inclusive, and sustainable future. From interconnected transit, venues and enterprises to smart cities and next-generation networks, we enable new possibilities in the way people live, work and play.

We don't just talk about the future. We exist to help build it. Creating the foundation from which a better collective future can be imagined.

To learn more visit boldyn.com