

# FRATEL

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## **Stratégies des opérateurs en matière de partage d'infrastructure**

Brussels, November 19 2009

Pierre-Yves Potelle – Cullen International

# Real friends?

## Infrastructure sharing

First mover	New
 But 	

# Reasons to share

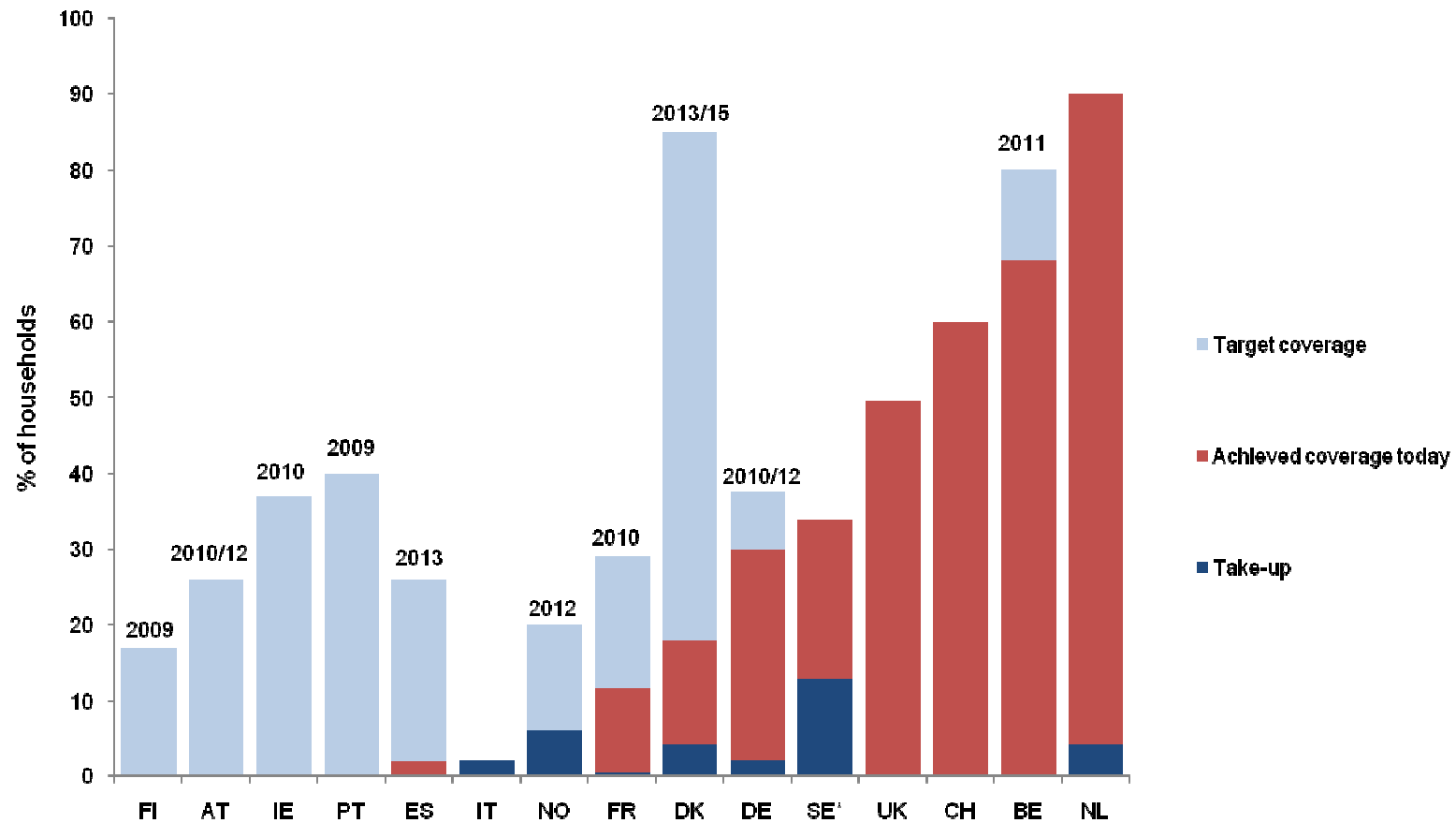
- High investment risk
- Hardly-replicable physical assets  
(e.g. civil engineering infrastructure)
- Large coverage in a short timeframe

# Two examples

- Co-investment in NGA
- Mobile network sharing

# NGA: dreams and realities

NGA benchmark (including FTTH/FTTC/HFC cable)



# Co-investissement

## Build and Share (co-invest)

Operator 1 builds NGA in town 1. Operator 2 builds NGA in town 2.

Operators 1 and 2 agree to share each other's networks – again possibly passive or active access services.

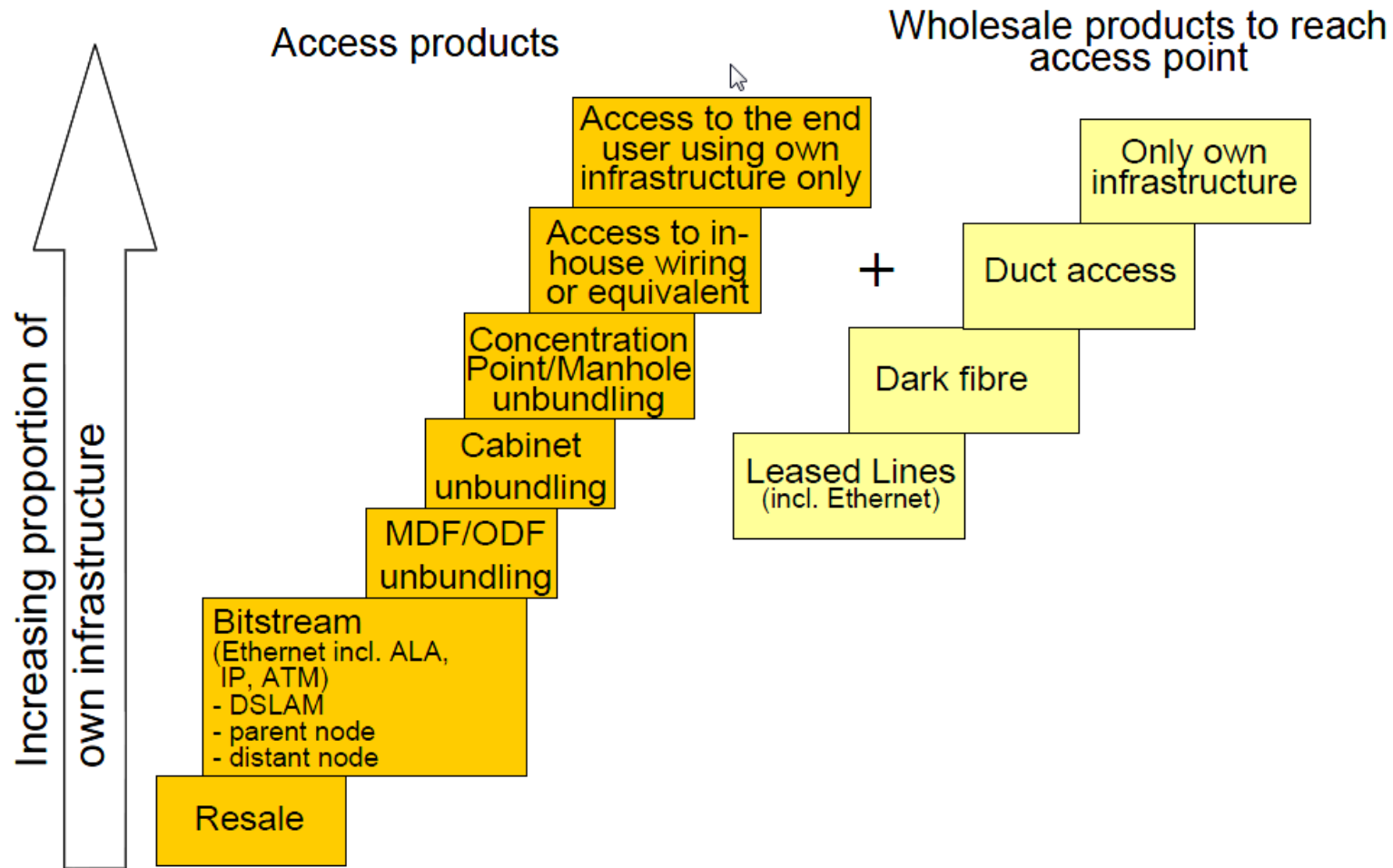
**National NGA with objective to cover all major cities / 50+% population as a first step**

**Italy**

**Extending NGA deployment beyond major cities to smaller towns  
(Major cities covered without investment sharing)**

**Germany**

# NGA ladder of investment – ERG June 2009



# Infrastructure sharing - mobile

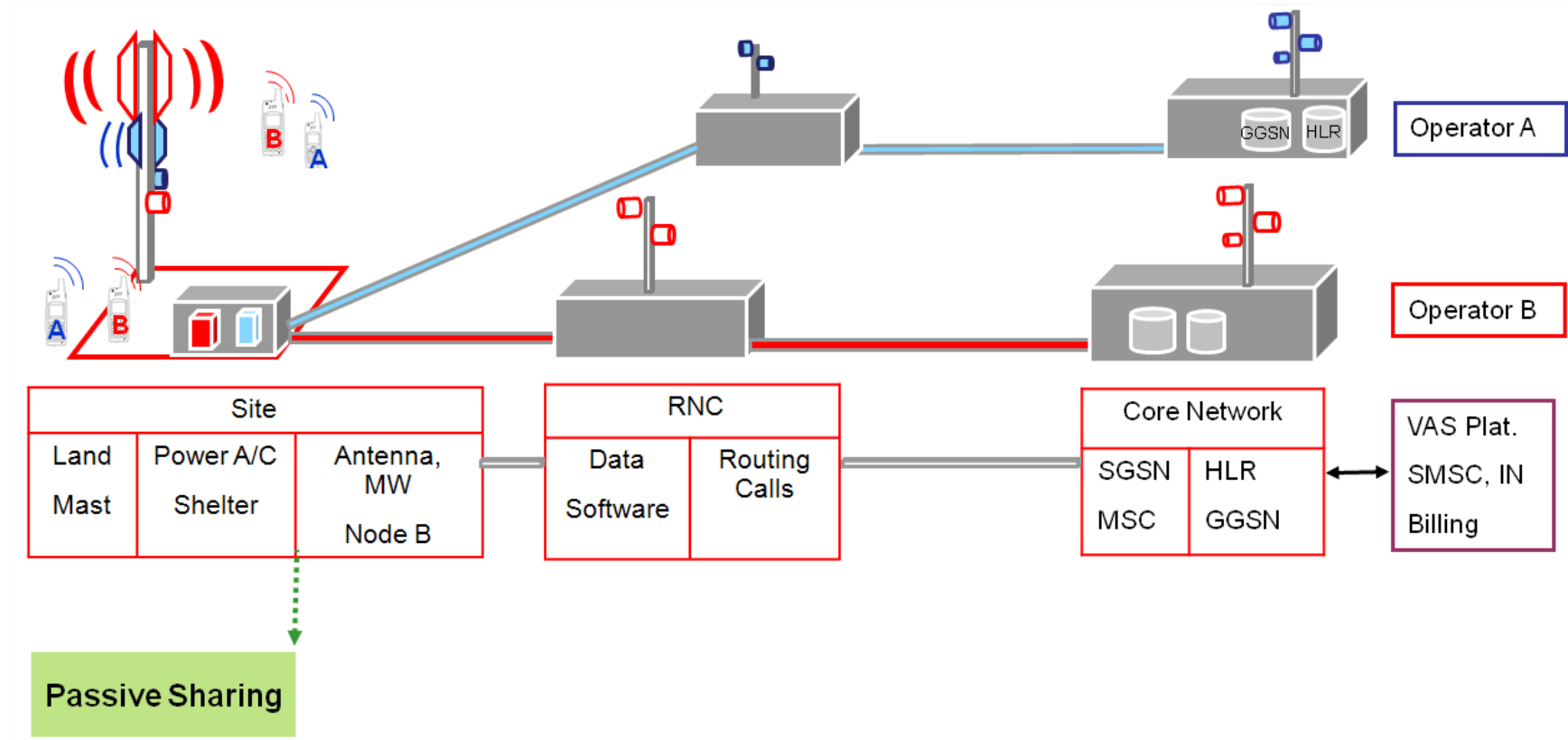
Increasing depth of network sharing from left to right



Site sharing	Mast sharing	RAN sharing	RAN sharing + core network	Regional or national
<p>Operators A and B share the same physical compound but install separate masts, antennas, and BTS/Node B.</p> <p>The operators may decide to share support equipment, including shelters, power supply and air conditioning.</p>	<p>Operators A and B share the same mast (or other structure such as a rooftop). Each operator installs their own antenna onto the shared mast</p> <p>As for site sharing, the operators may also share support equipment.</p>	<p>Operators A and B share all access network equipment, including the mast, antenna, BTS/Node B, BSC/RNC and possibly also share backhaul to a point of connection with the core networks.</p> <p>Despite sharing the same hardware, each operator keeps separate "logical" control over the RAN by using its own software.</p>	<p>Operators A and B could also share some or all parts of the core network.</p> <p>To date the focus of interest for network sharing has concentrated on the access network.</p>	<p>Agreements allowing users of operator A to roam onto the network of operator B if operator A's network is not present in a particular location.</p> <p>2G/2G, 3G/2G or 3G/3G roaming.</p>

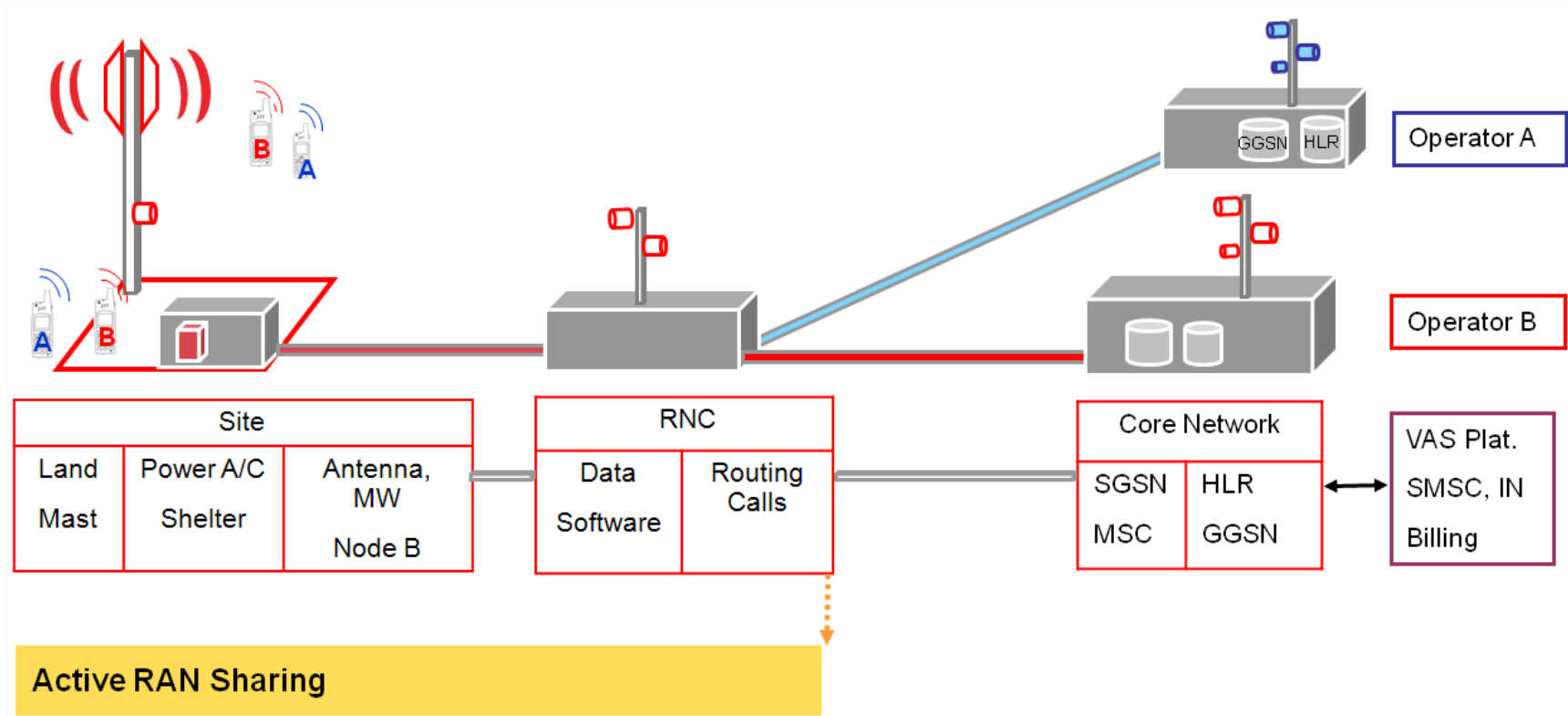


# Infrastructure sharing - mobile



• Source Vodafone

# Infrastructure sharing - mobile



• Source Vodafone

# Infrastructure sharing - mobile

Increasing depth of network sharing from left to right ➔				
Site sharing	Mast sharing	RAN sharing	RAN sharing + core network	Regional or national
Agreements in all countries		Spain Sweden UK	UK (planned)	Austria Denmark Italy Norway Spain UK

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**Pierre-Yves Potelle**  
**[pyp@cullen-international.com](mailto:pyp@cullen-international.com)**  
**[www.cullen-international.com](http://www.cullen-international.com)**

	Incumbent NGA	Passive				Active	
		In-building fibre	Duct access	Dark fibre	SLU	Wavelength	Bitstream
Belgium	FTTC		✓ (MDF to cabinet)	✓ (MDF to cabinet)	✓		✓
Denmark	FTTC DOCSIS 3.0		(Industry agreement)		✓		
France	FTTH GPON	✓	✓				
Germany	FTTC		✓ (MDF to cabinet)	✓ (MDF cabinet)	✓		
Italy	FTTC FTTH				✓		✓
Netherlands	FTTC FTTH P2P		✓	✓ (ODF access)	✓		FTTC: ✓ FTTH: X
Spain	FTTH GPON	✓	✓	✓	✓		✓ (Area 2)
Sweden	FTTC			✓ (MDF to cabinet)	✓	✓ (proposal – for backhaul if dark fibre not feasible)	✓
UK	FTTC FTTH		✓		✓		✓