Construction a NGA network

Stjepan Vodolšak

CROATIAN REGULATORY
AUTHORITY FOR NETWORK INDUSTRIES
(HAKOM)

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AGENDA

1. NGA NETWORK – DEFINITION AND COST
2. NGA NETWORK ARCHITECTURES
3. HOW TO REDUCE CAPEX FOR NGA NETWORK?
4. CONCLUSION

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NGA network - definition

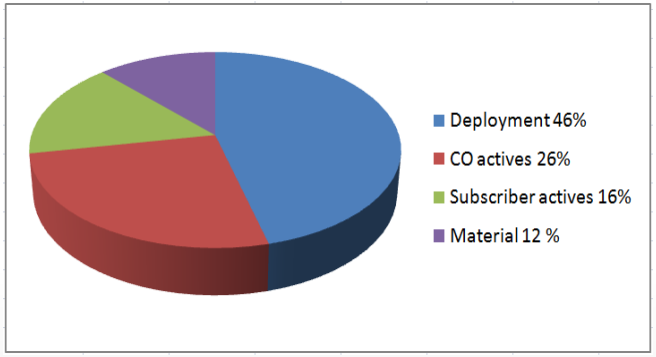
NGA network - **not fully copper-based access network**, capable of providing broadband access services with sustained bandwidths clearly higher than those available with fully copper-based access networks.

NGA network – **consist wholly or in part of optical elements** and are capable of delivering broadband access services with enhanced characteristics (such as higher throughput) as compared to those provided over already existing copper networks. NGA services can offer transfer rates of over 30 Mbps and therefore meet the broadband coverage target.

… many different definitions

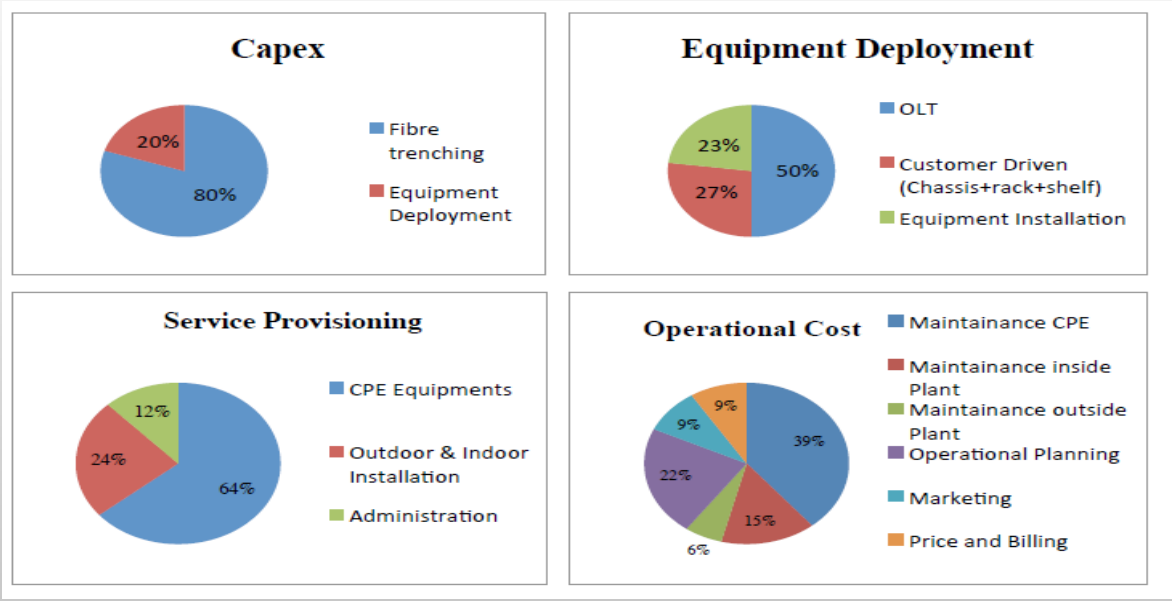
FIBRE OPTIC CABLE GETS CLOSER TO THE SUBSCRIBERS.

NGA network - cost



Cost breakdown of a FTTH project. Source: FTTH Council

- CO actives – the active equipment in the central office
- Subscriber actives – equipment installed on subscriber premises
- Material – fiber optic cable, enclosures and other passive hardware



Split up of costs for an FTTH network

- Capex (67 %)
- Service provisioning (24 %)
- Operational cost (9 %)

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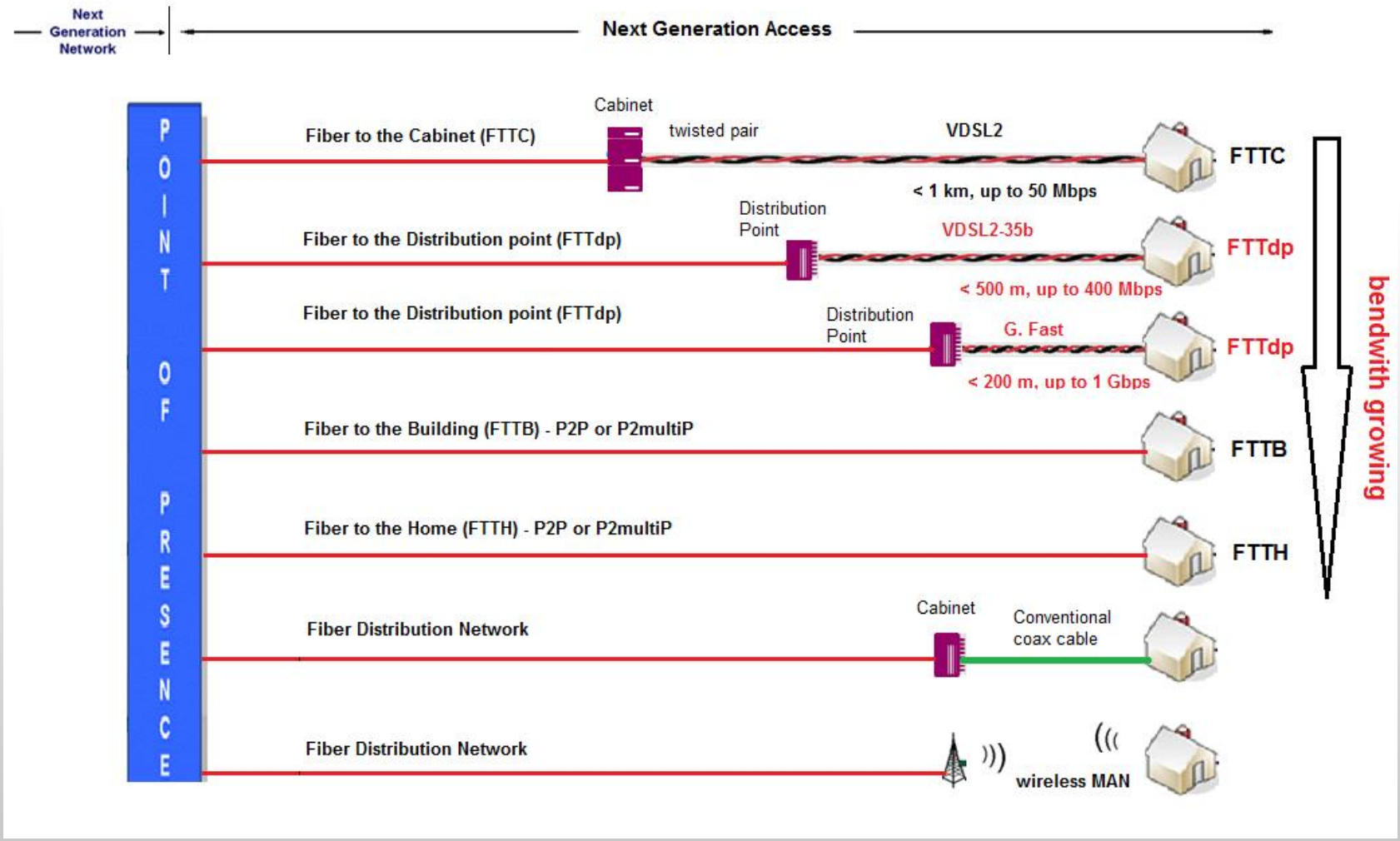
NGA network architectures



NGA network architectures

DSL technology

	17a profile	Vplus (35b profile)	G. Fast (106 MHz)
Short loops (< 250 m)	☑	☑	☑
Medium loops (< 500 m)	☑	☑	
Long loops (> 500 m)	☑	☑	
Density (max subs.)	400	200	16 - 48
Outside plant costs	$	$$	$$$
Standards	☑	☑	☑

Source: Alcatel-Lucent

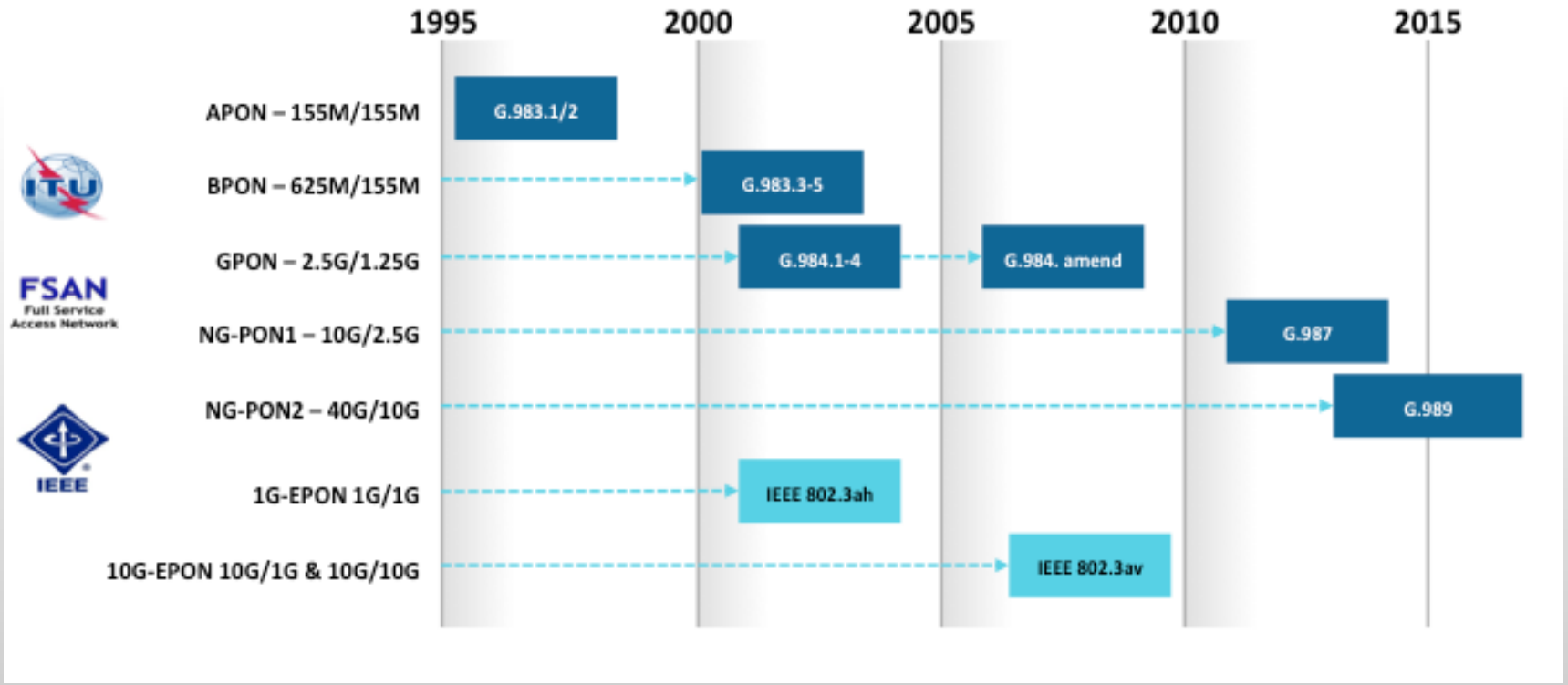
NGA network architectures

HFC technology

	Standardization	Max. capacity (downstream)	Max. capacity (upstream)
DOCSIS 1.0	1997	40 Mbit/s	10 Mbit/s
DOCSIS 1.1	2001	40 Mbit/s	10 Mbit/s
DOCSIS 2.0	2002	40 Mbit/s	30 Mbit/s
DOCSIS 3.0	2008	1,2 Gbit/s	200 Mbit/s
DOCSIS 3.1	2016	10 Gbit/s	1 Gbit/s
3.1 FULL DUPLEX	2017	10 Gbit/s	10 Gbit/s

NGA network architectures

PON technology



PON Standards Evolution; Source: Alcatel-Lucent

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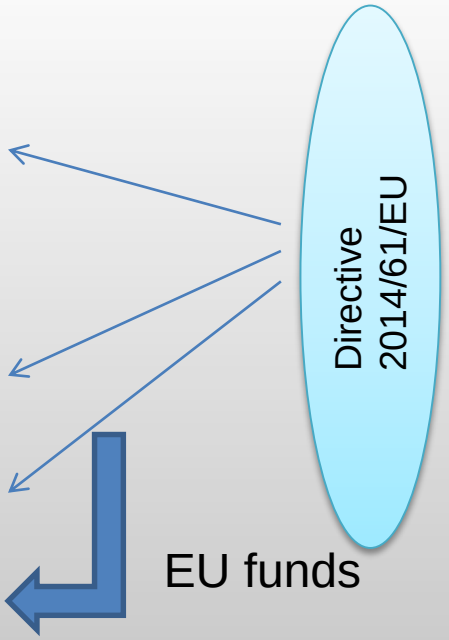
How to reduce CAPEX for NGA networks?

Investment - risk sharing

Municipality – M Incumbent operator – IO Alternative operator - AO	brownfield	greenfield
High urban area	M - ☒ IO - ☑ AO - ☑	M - ☒ IO - ☑ AO - ☑
Urban area	M - ☒ IO - ☑ AO - ☒	M - ☒ IO - ☑ AO - ☒
Rural area	M - ☑ IO - ☒ AO - ☒	M - ☑ IO - ☒ AO - ☒



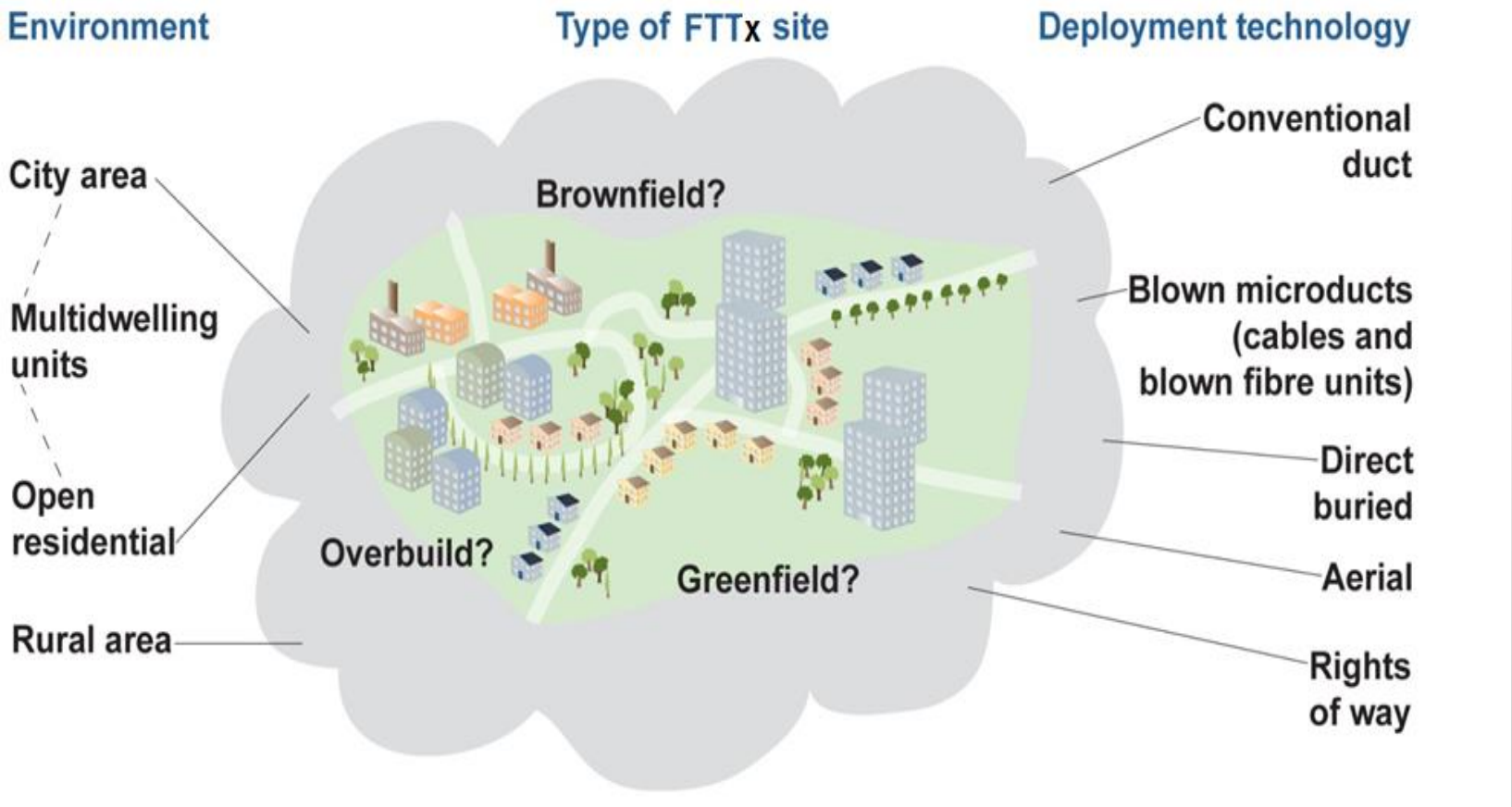
How to reduce CAPEX for NGA networks?

- Directive 2014/61 on broadband cost reduction – 4 main elements „pillars”
  - Access to and transparency of existing physical infrastructure
  - Coordination and transparency of planned civil works
  - Permit granting
  - In – building infrastructure

All EU Member States must transpose the Directive into national legislation with the provisions taking effect by 1 July 2016

How to reduce CAPEX for NGA networks?

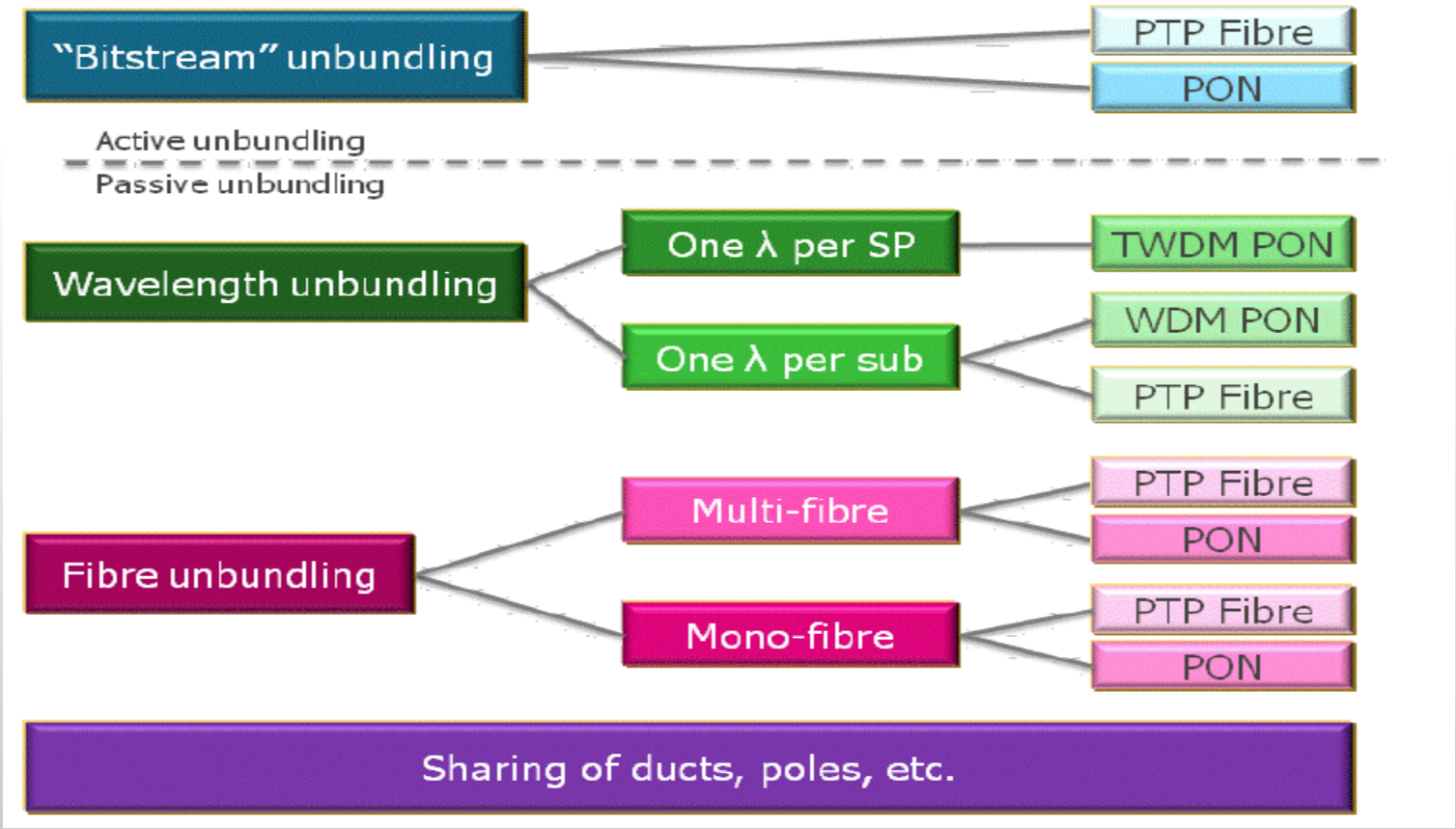
Choose the optimal solution for the dedicated area



Type of FTTx solution; Source: FTTH Council

How to reduce CAPEX for NGA networks?

Infrastructure sharing – open access approuch



Classification of infrastructure sharing for P2P and P2multiP; Source: FTTH Council

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Conclusion

1. Sharing knowledge about importance of this infrastructure.
2. Construction (Investment in) NGA networks has no alternative – it is „must have" infrastructure for society growth.
3. „No need to break the bank" – reuse existing copper (coax).
4. Invest in NGA network accordingly resources (financial & expert workers).
5. It's time for „rool - out".

Stjepan Vodolšak

HAKOM

CROATIAN REGULATORY AUTHORITY
FOR NETWORK INDUSTRIES

ROBERTA FRANGEŠA MIHANOVIĆA 9
HR-10110 Zagreb, CROATIA
Tel: +385 (0)1/7007 007
Fax: +385 (0)1/7007 070
www.hakom.hr