

# Access & Interconnection

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## Introduction

- Constructing networks, providing services
  - build or buy/own or rent
  - control access to end-users & making available facilities/services
- Regulatory control
  - role in liberalisation/harmonisation
    - ex ante, i.e. controlling behaviour of dominant undertakings
      - Mandating access (only where necessary)
      - Regulating terms of access, particularly cost
      - Acknowledging genuine network security and integrity concerns
      - Facilitate co-operation, for competition and environmental reasons
    - ex post
      - e.g. *Telecom Corporation of New Zealand v Clear Communications Ltd.* (1995) 1 NZLR 385

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## Definitions

'access' means the making available of facilities or services to another undertaking, under defined conditions, either on an exclusive or a non-exclusive basis, for the purpose of providing electronic communications services, including when they are used for the delivery of information society services or broadcast content services; it covers, inter alia: access to network elements and associated facilities, which may involve the connection of equipment, by fixed or non- fixed means (in particular this includes access to the local loop and to facilities and services necessary to provide services over the local loop); access to physical infrastructure including buildings, ducts and masts; access to relevant software systems including operational support systems; access to information systems or databases for pre-ordering, provisioning, ordering, maintaining and repair requests, and billing; access to number translation or systems offering equivalent functionality; access to fixed and mobile networks, in particular for roaming; access to conditional access systems for digital television services and access to virtual network services;

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## Definitions

'associated facilities' means associated services, physical infrastructures and other facilities or elements associated with an electronic communications network or an electronic communications service which enable or support the provision of services via that network or service, or have the potential to do so, and include buildings or entries to buildings, building wiring, antennae, towers and other supporting constructions, ducts, conduits, masts, manholes, and cabinets;

'interconnection' means a specific type of access implemented between public network operators by means of the physical and logical linking of public electronic communications networks used by the same or a different undertaking in order to allow the users of one undertaking to communicate with users of the same or another undertaking, or to access services provided by another undertaking where such services are provided by the parties involved or other parties who have access to the network;

– involving networks, both PSTN and IP

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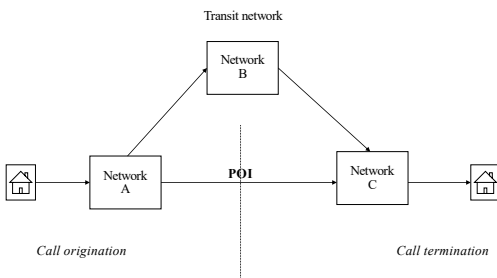
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## Circuit-Switched Interconnection



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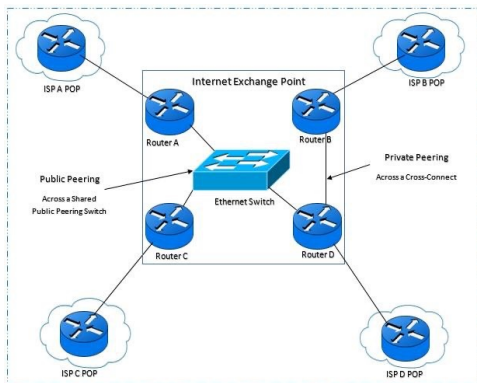
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## Internet Interconnection



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## Interconnection Directive (97/33/EC)

- Tiered rights & obligations for interconnection
  - *Annex I operators*: 'shall meet all reasonable requests...including access at points other than the network termination points offered to the majority of end-users' (art. 4(2))
    - "providing the public telecommunications networks and/or publicly available services, ...which have significant market power..."
  - *Annex II operators*: 'shall have a right and, ...an obligation to negotiate interconnection..' (art. 4(1))
    1. "control the means of access to one or more network termination points identified by one or more unique numbers in the national numbering plan."
    2. "provide leased lines to users' premises"
    3. "provide international telecommunications circuits..."
    4. "permitted ...to interconnect in accordance with relevant national licensing or authorisation schemes."

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## Interconnection Directive (97/33/EC)

- Obligations on SMP operators
  - rebuttable presumption if 25% market share
  - charges on principles of cost orientation & transparency
    - actual costs + reasonable rate of return on investments
    - cost-accounting systems (annex v)
  - publication of reference interconnection offer (RIO)
    - NRA has right to amend (art. 7(3))
  - sufficiently unbundled
- National Regulatory Authorities
  - on own initiative or at the request of either party
  - may set ex ante conditions
  - resolve disputes within 6 months

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## Annex VII, Part 2: Issues to be agreed

- (a) Description of interconnection services to be provided,
- (b) Terms of payment, including billing procedures,
- (c) Locations of the points of interconnection,
- (d) Technical standards for interconnection,
- (e) Interoperability tests,
- (f) Measures to comply with essential requirements,
- (g) Intellectual property rights,
- (h) Definition and limitation of liability and indemnity,
- (i) Definition of interconnection charges and their evolution over time,
- (j) Dispute resolution procedure between parties before requesting national regulatory authority intervention,
- (k) Duration and renegotiation of agreements,
- (l) Procedure in the event of alterations being proposed to the network or service offerings of one of the parties,
- (m) Achievement of equal access,
- (n) Provision of facility sharing,
- (o) Access to ancillary, supplementary and advanced services,
- (p) Traffic/network management,
- (q) Maintenance and quality of interconnection services,
- (r) Confidentiality of non-public parts of the agreements,
- (s) Training of staff

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## European Law

- Recommendations on interconnection rates
  - Part 1 Interconnection Pricing (98/195/EC)
    - “...should be calculated on the basis of forward-looking long run average incremental costs, since these costs closely approximate those of an efficient operator employing modern technology.”
    - amended March 2000 and February 2002
  - Part 2 Accounting separation & cost accounting (98/322/EC)
- Competition law
  - Commission Notice on Access Agreements (1998/C 265/02)
    - ‘essential facility’?
- Directive 98/61/EC amending 97/33/EC
  - operator number portability and carrier pre-selection

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## Local Loop Unbundling

- Regulation 2887/2000/EC (repealed)
  - Recommendation 2000/417/EC
- Terminology
  - “the physical path used by electronic communications signals connecting the NTP to a distribution frame or equivalent facility in the fixed public electronic communications network.” (Art. 2(30))
- ‘Notified operators’
  - publish reference offers: ‘sufficiently unbundled’ (annex)
  - refusal only on technical feasibility & network integrity criteria
  - cost-oriented prices
- Regulatory intervention on own initiative
  - Office of the Telecommunications Adjudicator ([www.offta.org.uk](http://www.offta.org.uk))

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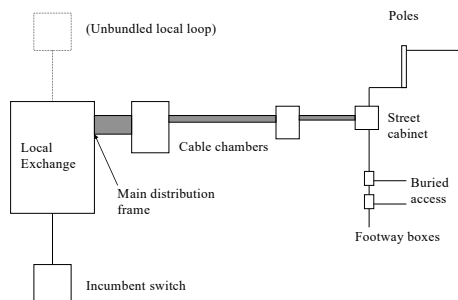
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## Access network: Copper Network



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## Reference Offer for ULL

- Conditions for unbundled access to the local loop
  - e.g. ordering and provisioning procedures, usage restrictions
- Co-location services
  - e.g. rules on the allocation of space
- Information systems
  - e.g. access to operational support systems
- Supply conditions
  - e.g. prices or pricing formulae for each feature

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## Access Directive (2002/19/EC)

- Still tiered, but different.....
- All undertakings have a right & obligation to negotiate interconnection (Art. 4(1))
  - Case C-277/07, *Commission v Poland* [2008] E.C.R. I-8403
- SMP operators (art. 9-13)
  - NRA discretion on applicability (but maximum)
    - transparency, inc. sufficiently unbundled reference offer
    - non-discrimination
    - accounting separation
    - access & specific network facilities
  - Case C-556/12, *TDC A/S v Teleklagenævnet* (19 June 2014)
    - can be required to install a 'drop cable' (30m) at the request of a competing operator
    - NRA must take into account the initial investment of the operator & the price control that prevents cost recovery

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## Access Directive (2002/19/EC)

- price control & cost accounting systems
    - Case 277/16, *Polkomtel v Prezes Urzędu Komunikacji Elektronicznej*, 20 December 2017 re: cost orientated prices
  - functional separation (13a) and voluntary separation (13b)
- Other access obligations (art. 5-6)
- e.g. “to the extent that is necessary to ensure end-to-end connectivity...”
  - No SMP finding required
    - *TeliaSonera Finland Oyj v iMEZ Ab* [2009] E.C.R. I-10717: “an exception and must therefore be interpreted strictly.”
  - 2009 Reform: “to make their services interoperable”
  - NRA intervention “at its own initiative”

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## Next Generation Access Networks

- Commission Recommendation on regulated access to Next Generation Access Networks (10/572/EU)
  - ‘on consistent non-discrimination obligations and costing methodologies to promote competition and enhance the broadband investment environment’ (2013)
  - Wholly or part ‘optical elements’
    - Fibre to the Home, Building or Curb (FTTH, FTTB & FTTC)
  - Access to ‘civil engineering infrastructure’ & ‘terminating segments’
    - in accordance with the principle of equivalence (Annex II)
    - SMP operator should install sufficient capacity for operators
  - Annex I: Pricing principles and risk
    - Sharing investment risk, e.g. long-term pricing & volume discounts
    - Reward investment risk, i.e. risk premium in the cost of capital

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## Deployment Directive (2014/61/EU)

- ‘Network Operators’
  - Telecom operators, gas, electricity, water, transport services
- Access to physical infrastructure
  - Right to offer & obligation to meet all reasonable requests for access (Art. 3)
    - NRA imposed conditions (*ex ante*) & dispute settlement mechanism (*ex post*)
      - Case C-243/21, *TOYA sp. z o.o., v Prezes Urzędu Komunikacji Elektroniczej*, 17 November 2022
  - Provision of information
    - Limitations required for reasons of network security and integrity, national security, public health and safety or commercial confidentiality
  - Co-ordination of civil works
    - Transparency obligation, only if funded through public monies
- Permissions & permits
  - ‘single information points’
  - Within 4 months of receipt
  - Building permits concerning ‘in-building physical infrastructure’
- Repealed May 2024

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## Gigabit Infrastructure Act (Regulation 2024/1309)

- To facilitate and stimulate the roll-out of very high capacity networks
  - Joint use of existing infrastructure & more efficient deployment of new infrastructure
- Minimum requirements
  - Member States may adopt stricter or more detailed rules
  - Without prejudice to safeguarding national security and other essential functions
- Access to existing physical infrastructure
  - Transparency
    - Digitalisation of single information points
  - Co-ordination of civil works
- Procedure for granting permits or rights of way
  - Deemed grant if no decision within deadline
- In-building physical infrastructure and fibre wiring
  - Access
- Dispute settlement

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## Roaming

- Roaming (**Access to mobile networks**)
  - National, international & call termination
  - Sectoral inquiry & investigative raids (2000-01)
  - No. 717/2007, No. 544/2009, No. 531/2012, No. 2015/2120
- Political drivers
  - “The retail and wholesale roaming markets *exhibit unique characteristics which justify exceptional measures*”
  - Regulation (EU) 2022/612 (OJ L 115/1, 13.4.2022)
    - Wholesale roaming access
      - All reasonable requests to replicate domestic service
      - Refuse only on technical feasibility or network integrity, not commercial considerations
      - Maximum charge, e.g. €0.019 per minute (calls), €0.003 (SMS); €1.0 (data)
    - Retail: ‘Roam like at home’, since June 2017 & until 2032
      - Fair use policy limitation, e.g. permanent roaming
      - Sustainability derogation where not able to cover actual or projected costs: surcharge

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## EECC, Title II

- Right & obligation for public electronic communications networks and services
  - Art. 15(2)(a) ‘right to negotiate’
  - Art. 60(1) ‘an obligation to negotiate interconnection’
    - Use of confidential information
    - Through ‘neutral intermediaries’, when required
- NRAs powers to intervene
  - ‘shall...encourage and, where appropriate ensure..’
    - To promote efficiency, sustainable competition, deployment of very high capacity networks, investment & innovation, benefits to end-users
    - Against non-SMP operators

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## EECC, Title II

- Interoperable services (Art. 61(2))
  - including number-independent interpersonal communication services
  - Digital Markets Act (Regulation 2022/1925), Art. 7 *Obligation for gatekeepers on interoperability of number-independent interpersonal communications services*
    - e.g. Meta’s [WhatsApp Reference Offer](#)
  - Data Act (Regulation 2023/2854), Chap VII: “ensure compatibility with open interoperability specifications or European standards for interoperability”
    - Transport, syntactic, semantic data, behavioural & policy interoperability

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## EECC, Title II

- Access to internal physical infrastructure (Art. 61(3))
  - Wiring, cables or associated facilities inside a building
  - Upon reasonable request
  - Upon PECNs or other non-telco owners
    - e.g. building developers
- Sharing of passive and active infrastructure (Art. 61(4))
  - For the local provision of services using radio spectrum
    - Localised roaming access agreements if 'no viable or similar alternative', i.e., "insurmountable economic or physical obstacles"

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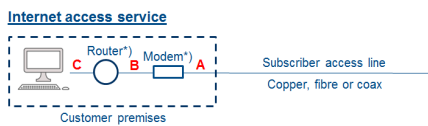
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## EECC, Title II

- Network termination points (Art. 61(7))
  - "the physical point at which an end-user is provided with *access to a public communications network*"
    - Regulatory boundary
      - Modem and router: part of the public network or part of the end-users' telecommunications terminal equipment ('TTE')?
      - Determined by 'objective technological necessity' based on Regulation 2015/2120 *Open Internet Access*, Art. 3(1) re: end-user right to 'use terminal equipment of their choice'



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## SMP Access Remedies

- Transparency obligation in respect of access & interconnection
  - Reference offer that is 'sufficiently unbundled'
    - BEREC Guidelines on Minimum Criteria (BoR (19) 238)
- Non-discrimination
  - Equivalent conditions in equivalent circumstances to providers of equivalent services + 'as it provides for its own services'
- Accounting separation
  - Including internal transfer prices
- Civil engineering (i.e. physical infrastructure)
  - Irrespective of whether it forms part of the relevant market

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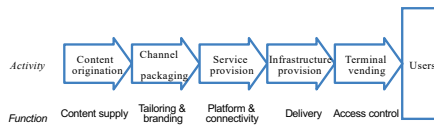
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## Digital Television & Radio Services (Art. 62)

- Conditional access systems (CAS), electronic programme guides (EPGs) and application program interfaces (APIs)
  - Broadcast supply chain



- Policy concerns: competition bottleneck, cultural diversity & media pluralism

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## Annex II

- All undertakings providing CAS
    - ‘access services of which broadcasters depend’
      - Offer to all broadcasters technical services on a ‘fair, reasonable and non-discriminatory basis’ (‘FRAND’) to enable their services to be received
      - Maintain separate financial accounts
      - Grant licences to manufacturers of consumer equipment on FRAND terms
        - Not subject to conditions that prohibit, discourage or deter:
          - (a) a common interface allowing connection to other access systems and
          - (b) specific means of access, provided it complies with relevant and reasonable conditions concerning the security of transactions
    - Conditions may also be applied to APIs and EPGs
      - Including the position of public service broadcasters on EPGs
- SMP operators

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