The Amsterdam fiber network

"working towards the Lisbon goals"

Porto, oktober 26th, 2004
Dirk van der Woude, project leader Citynet Amsterdam
A title badly chosen?

- “Implementation Lisbon policy is a big failure.“  
  *Romano Prodi, October 24, 2004*

- The EU's reform agenda risks to become a "synonym for missed objectives and failed promises".
- The EU economy has fallen further behind the US in the past five years.  
  *Wim Kok Report to EC, November 2004*
### Fiber in the Netherlands

<table>
<thead>
<tr>
<th>Homes</th>
<th>Remarks</th>
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<tbody>
<tr>
<td><strong>Eindhoven</strong></td>
<td>2,000 (8,000)</td>
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<td><strong>Nuenen</strong></td>
<td>7,800</td>
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<tr>
<td><strong>Rotterdam</strong></td>
<td>4,000</td>
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<tr>
<td><strong>Utrecht/Soest/Nijmegen/Arnhem/Leiden</strong></td>
<td>60,000</td>
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<tr>
<td><strong>Amsterdam</strong></td>
<td>40,000</td>
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</tbody>
</table>
| **The Hague, Tilburg, Deventer, Leeuwarden, etc.** | hundreds | Different types of PPP’s, different roles of (local government)  
  - Cityrings  
  - FttI for care- and/or education institutes  
  - FttC, FttH |
Almere FttH

- private-public partnership
- aug. 2004: pilot, 250 homes
- roll out 2004/2005: 8,000
- Triple play € 80/month (VAT incl.)
  - 10 Mb symmetric
  - 70 TV channels
  - telephone (VoIP)
- Role of government:
  - proces coordinator
  - small investor
  - political advocacy
But: greatest Dutch fiber success: rural!

- **Nuenen** (Noord-Brabant province, near Eindhoven (pop 35,000)
  - Rural / semi-urban part of the Netherlands

- **Fiber project of social housing corporation**
  - plus large investor
  - plus central government spend per household €500 for connection
  - Contract open to 7,800 households

- **start july 1st, 2004**
  - August 31: 97% of households had signed contract
  - September: first connections live
  - December: roll out complete

- **price after 1st year appr. €50/month (VAT incl.)**
  - triple play
Aims & considerations local government

- **Internet-penetration**
  - Homes appr. 80%
  - Age: age 12 – 18 »95%
  - Midband-penetration: Amsterdam »55%

- **Existing networks nearing technical end**
  - Amsterdam: memories of telephone crisis 1986/1987
  - claims of upgradeability manifold – not implemented
  - f.e. high speed cable pilot (!) started only october 2004

- **Roll out fiber will take 5 – 7 years**
  - Little time left…

- **No new digital divide**
  - all meterboxes of Amsterdam connected

- **Leaving existing vertical integration**
  - maximum access for old & new providers delivering old & new services

- **Open access for all service providers**
  - Liberalized market at last
Users outpace existing capacities

Growth per month of data traffic Amsterdam Internet Exchange

% of growth

months
Owners existing networks remain inactive

- Attractive cash flows copper & coax
  - why invest now?
- Few incentives towards innovation as admission threshold for new parties is high
- Fiber is the natural generic infrastructure
  - But it heralds the technical commercial end of existing infrastructures

NB: circumstances in the Netherlands
Amsterdams’ three layers model

- **Passive infrastructure**
  - Loan capital, private investors,
    - City of Amsterdam (20% total capital)

- **Active infrastructure**
  - Investor: market

- **Service providers**
  - Investor: market

- **Consumer/SME**
Financing the first 10% of the Amsterdam network

- **Passive layer 44 %**
  - Shareholders equity 60 % (risk bearing!)
  - Market 67 %
  - Municipal 33 % (limited!)
  - Loan capital 40 %

- **Active layer 56 %**
  - Market, risk bearing
  - No government guarantees or risks

- Of total investment on 1st 40,000 meterboxes:
  - 90 % market
  - 10 % local government

- Leaving 410,000 meterboxes to be connected by market
Not all bandwidth is equal

- “My tuned up scooter equals your Mercedes, both can drive 80 km/h and faster”

**Quality aspects**

- What bandwidth guarantees?
  - Consumer aDSL: 2,5 to 4%
  - 100% certainty at extra cost: 1024/512 kbps: € 560,- (incl. VAT)

- Symmetric bandwidth?
  - not available
  - so no service development
So what does one call broadband?

The Lisbon strategy aims at competition with US, South-East Asia. They’re fiberizing - seems time that we get ourselves some new definitions!

A proposal from Amsterdam:

- Smallband: up to 512 Kb/s, asymmetric or symmetric
- Midband: up to 10 Mb/s, *asymmetric*
- Middle broadband: up to 10 Mb/s, *symmetric*
- Broadband: 10 Mb/s and more, *symmetric*
High-quality generic and open communication-infrastructure

- Future proof, robust towards innovation
- Everywhere & generic
- Low threshold accessibility
  - through scale and competition low consumer cost
- Open network, maximum room for competition
  - commercial services in actively free competition
  - as well as for social services
    Citynet as a metropolitan intranet
- Room for innovation
  - competition as driving innovative force
Much more than Internet alone…

Fysical medium: optic fiber

Consumer can choose between 10 or more service providers with offers & prices
A network to give wings to competition

- The implementation of a truly open, ubiquitous, fiber optic based access network
- Always start from perspective of the end-user, not from backbone perspective
- Access network is the missing “First Mile”
- Use existing fiber/duct capacity where possible for backhaul and interconnect of POP locations
- The decision will be based on economical and operational criteria only
Freeing the network

- Maximize entrance for service- and content providers to offer services to customers and to develop new services for customers
  - With the lowest possible threshold or barrier
  - In an open market with a level playing field
  - Within economical, technological and practical limitations
  - Prevent vertical integration that will limit openness and free choice

- Unlock for everybody the cheap and abundant capacity of the fiber optic network within Amsterdam
  - Intranet/Citynet (on-net) bandwidth can be offered much cheaper than Internet (off-net) bandwidth
  - There is immediate demand for low-cost/flat fee services for direct everyday use, like Inexpensive flat fee two-way high quality video communication
Private-Public Partnership

- It includes optimizing the design, its engineering, the marketing, and business case
- A true partnership demands that only a limited number of non-negotiable objectives are set
- Includes acceptable business case for all parties involved
- The optimal solution will be fine tuned in a dialog with the market and with technology partners
- An integral (and confidential) blueprint has been developed
- A large amount of details have been investigated including trends, technological developments, designs, business models, marketing models, engineering issues, operational issues etc.
Truly open ubiquitous fiber access network

- Maximize the free choice of end-users in use of the network and in the selection of services, service-providers and content-providers
- With the lowest possible threshold or barrier
- Includes uses of the network for basic communication and peer-to-peer communication by end-users
- Within economical, technological and practical limitations
- Prevent vertical integration which will limit openness and free choice
Summing up: the role of government

Local
- Think ahead, develop vision and knowledge
  - Longer term than companies can or dare
- Act
  - Direct the match breaking process
  - Assemble and unite stakeholders
  - Organize first mile partners (care, education)
  - When necessary: invest (within ‘Altmark’ legal framework) in catalyzers
    ➢ Especially when a ROI can be calculated within 5 years

National
- Develop a policy on dealing with a new natural monopoly
- In between control copper & coax alike

European
- Enforce & implement & control electronic communication legislation
see you at www.citynet.nl