

digipolis®

# Digipolis

Enabling New Services  
in the Cities of Antwerp and Gent



*Alcatel IP Division*



## Antwerp & Gent

### ■ Two largest cities in Flanders

- Serving as a model for the country in terms of economical, cultural and social development
- Facing challenges of globalization, individualization and demographic changes
- Need to invest in programs supporting the development of people and economic activity

### ■ Merger of ICT departments

- Both cities decided to merge their ICT departments into one organization in 2003.
- Synergies were obtained in know-how, personnel, technology and buying power
- Created a stronger partner to the Belgian government in terms of defining and deploying new e-government services



# About Digipolis (2 / 2 )

## Digipolis

### ■ ICT Department for the Cities of Antwerp & Gent

### ■ Mission:

- To support municipal programs and to serve as a lever to the city to lift its capacity to innovate to a higher level

### ■ Delivering services to:

- Social Welfare Centres
- City Administration
- City Police
- Schools
- Citizens
- Visitors
- Business

<http://www.digipolis.be/english/>

# The Digipolis “Project”

## Objectives:

### ■ To build a Visionary Platform

- Build a bridge between the past and the future
- Integration of telecom services with traditional information systems
  - Fixed & Wireless
  - Audio, Video, Data

### ■ To offer an integral service to the cities and their end-customers

- Building electronic front office to apply for and fill out official forms in a fast and secure manner
- To improve decision making processes by making all kinds of information text, audio & video readily available
- Bridging the gap with the citizens : training how to use ICT, use intuitive media towards certain groups (Interactive TV targeted to elderly people)



# The Digipolis Infrastructure Requirements

## In-Source vs Outsource

### ■ Owning the Optical Fibre infrastructure

- Digipolis owns an optical fibre cable infrastructure

### ■ Outsourcing the management & operation of the infrastructure

- Digipolis wanted to outsource the daily operation of the infrastructure
- Voice and data services running outside of the owned infrastructure to be provided by a single supplier

## New Data infrastructure

### ■ Migrate from ATM to 10 Gigabit Ethernet

### ■ Integration LAN & WAN

## New Voice infrastructure

### ■ Implement new VoIP infrastructure

## New Call Center

### ■ CRM solution for improved communication with Citizens

# Digipolis Data Network Requirements

Implement a new backbone network (core & Access) supporting:

- 10G Ethernet to all access switches and core infrastructure able to support the density & bandwidth
- MPLS support through the entire backbone
- Wirespeed Layer-3 switching throughout the entire backbone, based on OSPF
- QoS support throughout the entire backbone
- Full redundancy to the level of the access switches
- ...

Implement a new centralized server infrastructure

- Using 10G Ethernet uplinks

Migrate Wireless LAN network

- Support QoS, VoWIP, 802.11b/g and 802.11i

Offer a roadmap to Wimax in the future

Offer separate Virtual Networks for the Municipal Administration, Welfare Services and Police supporting all of the above

# Digipolis Voice infrastructure Requirements

Migration of Networked Alcatel 4400 switches to VoIP

Centralize trunk lines while maintaining numbering scheme

All facilities supported throughout the entire network

- Switch-through, differentiated user profiles, grouping, short numbers, multiple numbers per set, busy-facilities, absent-facilities, intercom, secretary functions, audible help, central phone book, waiting music, voice mail,...

Maintaining different user group profiles

Connectivity with the voice network of the Port of Antwerp

Support for SIP and VoWIP

## Data Network Requirements

### ■ Backbone requirements fit

- Alcatel IPD – 7750/7450
  - High Availability
  - IP/MPLS support
  - VPLS for virtualization
  - Performance & Scalability

### ■ Access Network / LAN Distribution fit

- Alcatel ESD – OmniSwitch 6800/9700 for Access network & DataCenter
- Alcatel ESD – OmniSwitch WLAN

## Voice Requirements

### ■ Voice Switching fit

- Alcatel OmniPCX
  - VoIP
  - All features of 4400

### ■ Call Center Fit

- Genesys CRM solution



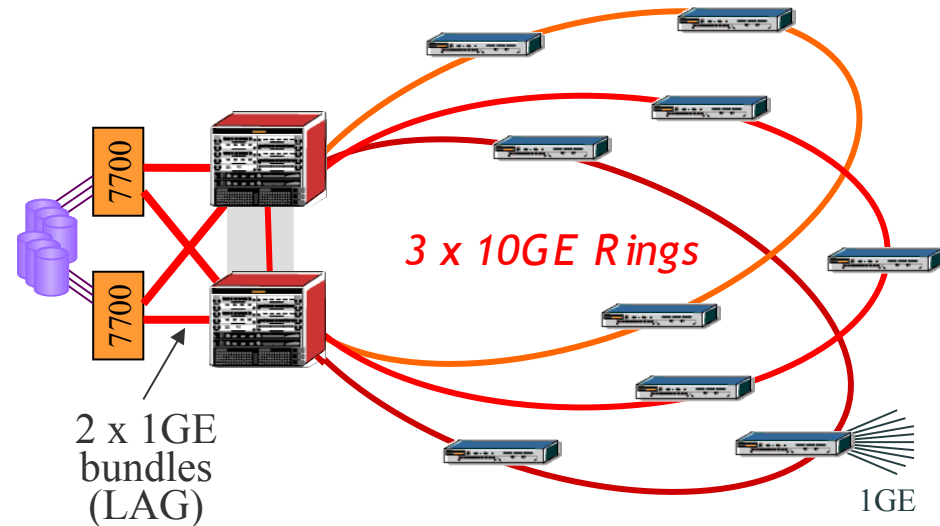
# Benefits of The Alcatel Solution

## Seamless migration

- L2 VLAN structure of ATM network ported to VPLS network
  - Easier to manage : no complex management of access control lists etc.
  - Lower operational costs
- Future proof for 3play applications
  - IPTV services to special interest groups
  - Interactive education services
- Migration of Alcatel 4400 to OmniPCX without user impact
  - No end-user re-training

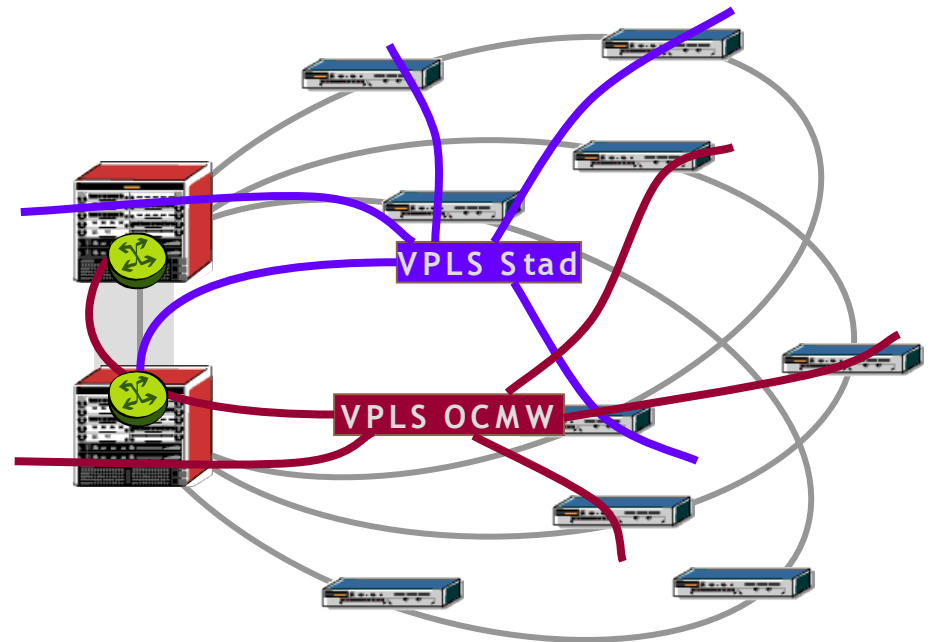
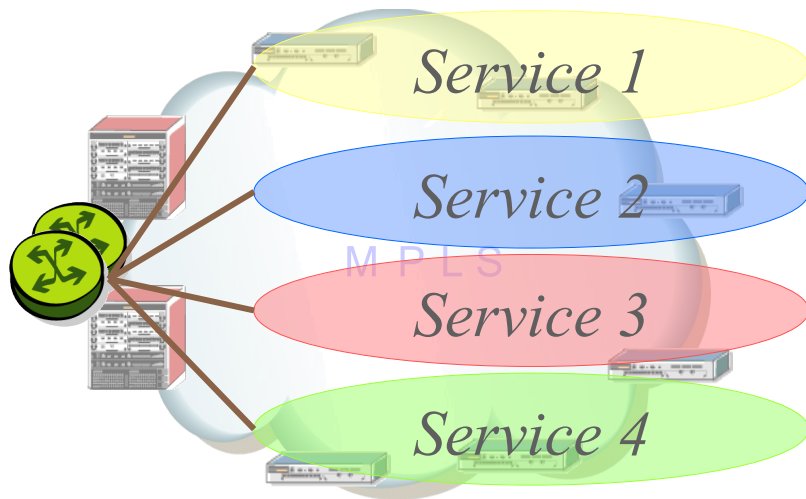
# Digipolis - MANAP Architecture

- 3 Rings at 10GE
  - Diversely routed
  - Allows for redundancy: 2 paths from every node
- Almost all locations : ESS -1
  - Collect traffic from locations
  - Map onto different services
- Digipolis -1 and -2 : SR -7s
  - Core routing for complete network (all services)
  - Connectivity to central resources
  - Full resilience



- Possible extension
  - Internet connection resiliency
    - VLL between Antwerp and Ghent for the Internet peering service

## VPLS, VLL, BGP/MPLS-VPN to create the virtualization



# Digipolis - Why did we win...

## Competition

- Telindus / Mobistar

- Belgacom / Proximus

- NextiraOne\* / Telenet /  
Mobistar

↙ Mobile  
↘ Wired communication / Internet

## Our consortium

- Technically superior solution

- Have help to improve the initial RFP by adding new features / ideas

- Lowest price

- Alcatel offer represent 10% of total project costs (Telenet + Mobistar = 90% !)

## Proposed solution

### Physical topology

- MANAP (Antwerp Administration)

- Core: 2 SR-7

- 3 rings with in each 7 to 8 ESS-1

- 7250 SAS for small sites + CEM

- PANAP (Antwerp Police)

- Core: 2 SR-1

- 1 ring made of ESS-1

- MANGE (Ghent)

- Core: 2 SR-1

- 1 ESS-1

### Technology

- MPLS / VPLS / VLL

B R O A D E N   Y O U R   L I F E

[www.alcatel.com](http://www.alcatel.com)