

# **Future Network Management and Services: the TMN view**

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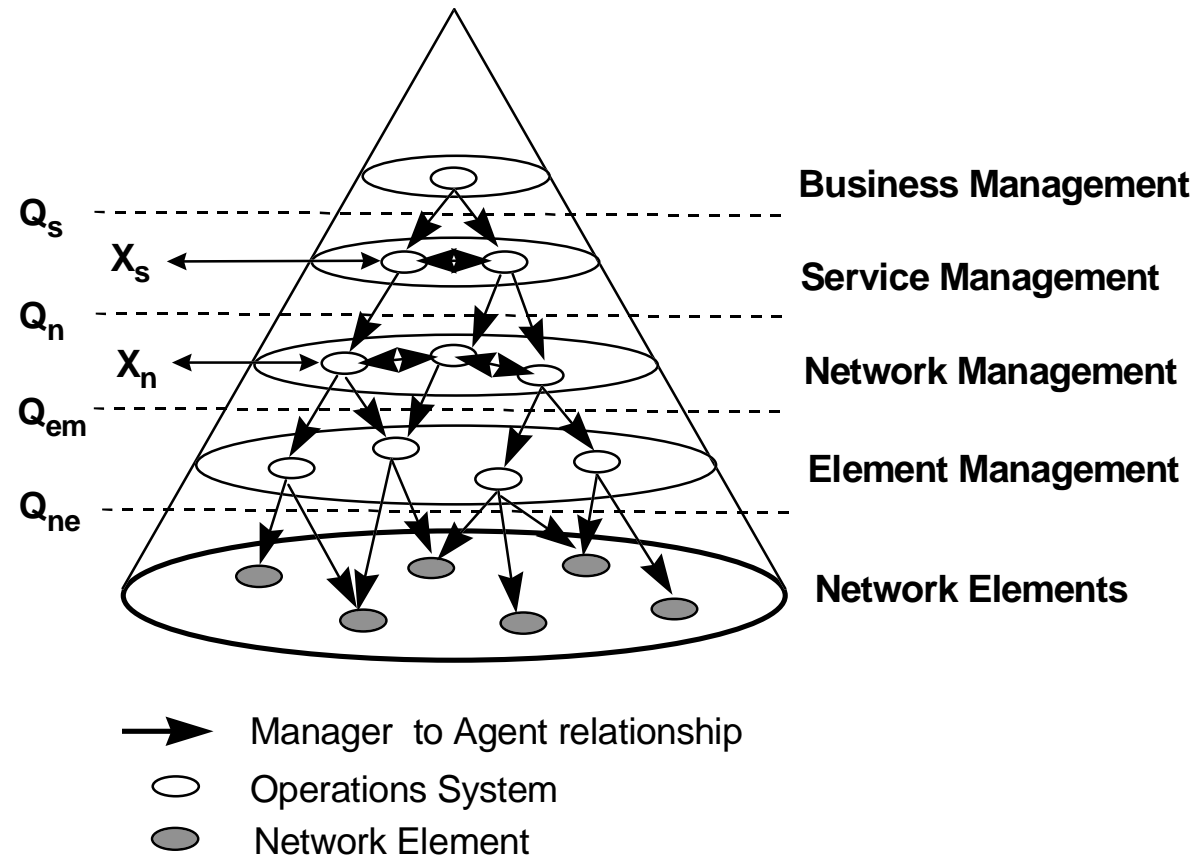
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# The Telecommunications Management Network

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- Hierarchical distributed management, O-O info model
- Only inter-layer and intra-TMN interfaces standardised



# TMN Based on OSI-SM

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- **OSI-SM has been chosen as the base technology for the TMN**
- **Advantages:**
  - **sophisticated multiple object access mechanisms**
  - **powerful event-based operation**
  - **global naming scheme based on containment**
  - **scales relatively well**
- **Drawbacks:**
  - **OSI underlying protocols used**
  - **Software platforms exhibit different O-O APIs**
  - **Whole OSs the only distributable entities**
  - **Security not yet implemented**



# Current Status

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- Being implemented in SDH/SONET, GSM, PSTN and ATM NEs
- TMN-compliant EM-OSs have also started to appear
- Not yet well-defined *network* information model
- Service management not yet well addressed
- Service control for bearer and enhanced services is orthogonal to TMN
  - a “Management-specific” framework



# OMG CORBA and the TMN

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- **CORBA is the first distributed object technology that satisfies key TMN requirements**
- **CMIS-like scoping can be provided, native filtering more difficult, event model less powerful at present**
- **Better distribution aspects, better performance, easy to program, general purpose technology (unlike OSI-SM)**
- **The JIDM work goes a long way towards providing OSI-SM-like facilities over CORBA**
- **Relevant solution is taking a long time while TMN NEs and EM-OSs are being built with OSI-SM**



# The Impact of CORBA on TMN

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- The TMN is much more than OSI-SM - initiative within the ITU-T SG-4 to de-couple TMN from OSI-SM (*TMN2000*)
- The ISO/ITU-T ODMA work considers OSI-SM in ODP terms and considers mappings to both CMIS/P and CORBA
- NEs, EM-OSs and possibly NM-OSs will be based on OSI-SM in the medium term
- Service management will be most likely based on CORBA
- CORBA (and Java-RMI) potential future TMN technologies, mobile agents will also become important



# TMN and Service Control Frameworks

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- **TMN used for IN-management in CS-2 services**
- **TINA a potential unifying long-term framework**
- **TMN principles are used in TINA but OAM&P network management aspects have not yet been worked out**
- **TMN and TINA solutions will have to co-exist - the use of CORBA in TMN will facilitate this co-existence**
- **The target unified telecom software architecture is still undefined and fragmented:**
  - **B-ISDN signalling, IN, UMTS, TMN, TINA**

