

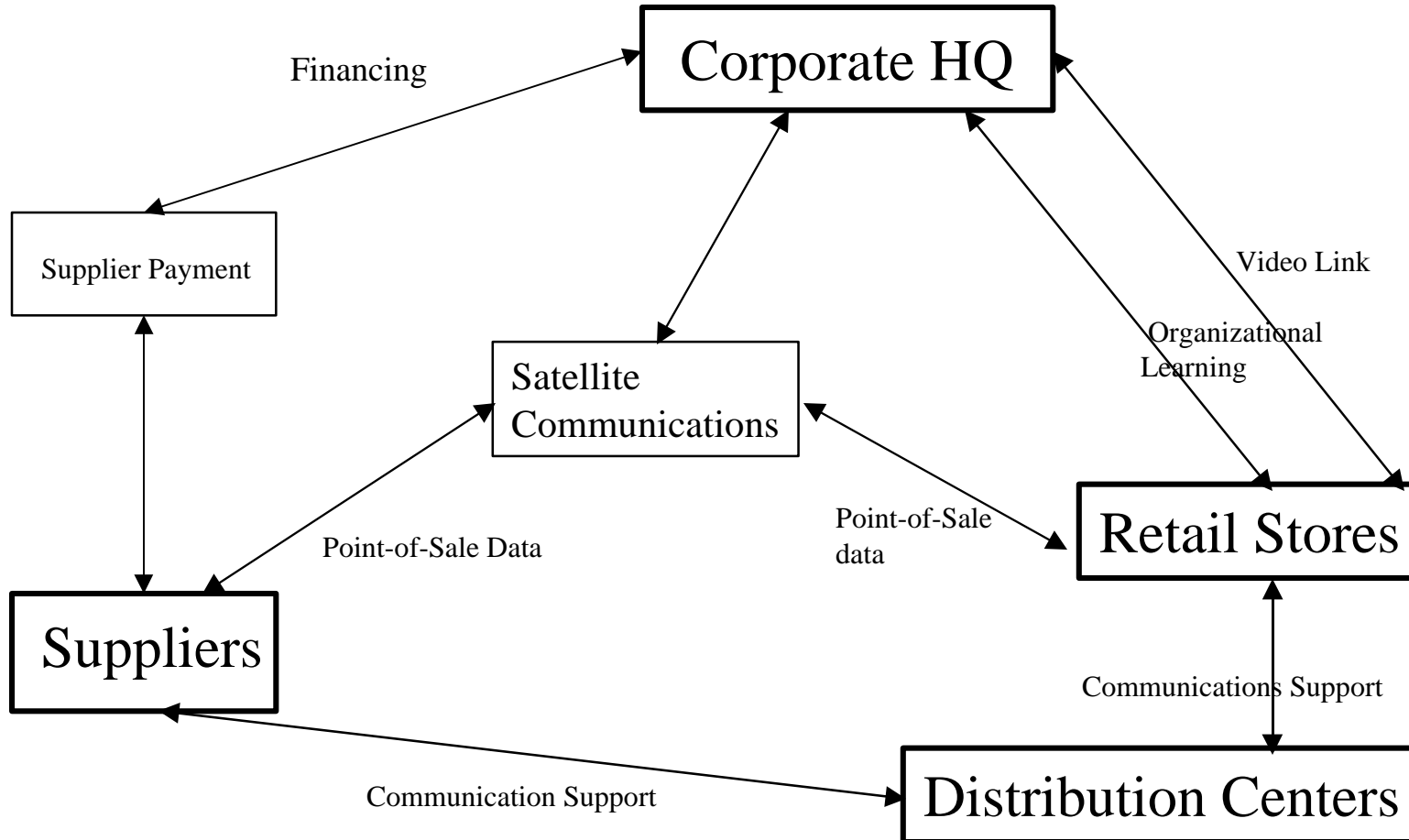
Towards XML As A Secure Intelligent Agent Communication Language

by

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- ◆ Intelligent Systems
- ◆ Enterprise Systems and Intelligent Agents
- ◆ Intelligent Communications
- ◆ OSI Intelligent Telecommunications Architecture
- ◆ Secure Intelligent Agents Communication
- ◆ Secure Intelligent Documents Infrastructure
- ◆ Recommendations for further research

- ◆ Previously known as “Expert Systems”
- ◆ Knowledge Management, Machine Learning, Neural Networks, Data Mining, Intelligent Agents
- ◆ Information Agents--adaptive agents, rational agents, mobile agents
- ◆ Agent Communication Language
- ◆ Intelligent Documents



- ◆ Agent Architectures
 - Persistent agents
 - » human-to-agent interface
 - transient agents
 - » agent-to-agent
 - Multiple Agent Systems
 - » service-oriented
 - » interagent communication
- ◆ Ontologies

◆ Speech-Act Theory

- Performatives and communicative acts

◆ Information Richness Theory

- Schemas and arbitrarily structured data types

◆ Media Richness Theory

- need to add agents and documents

- ◆ ISO OSI Model
- ◆ Telecommunications Infrastructure
- ◆ Power grid infrastructure
- ◆ Agent Based OSI Model



Traditional OSI Model

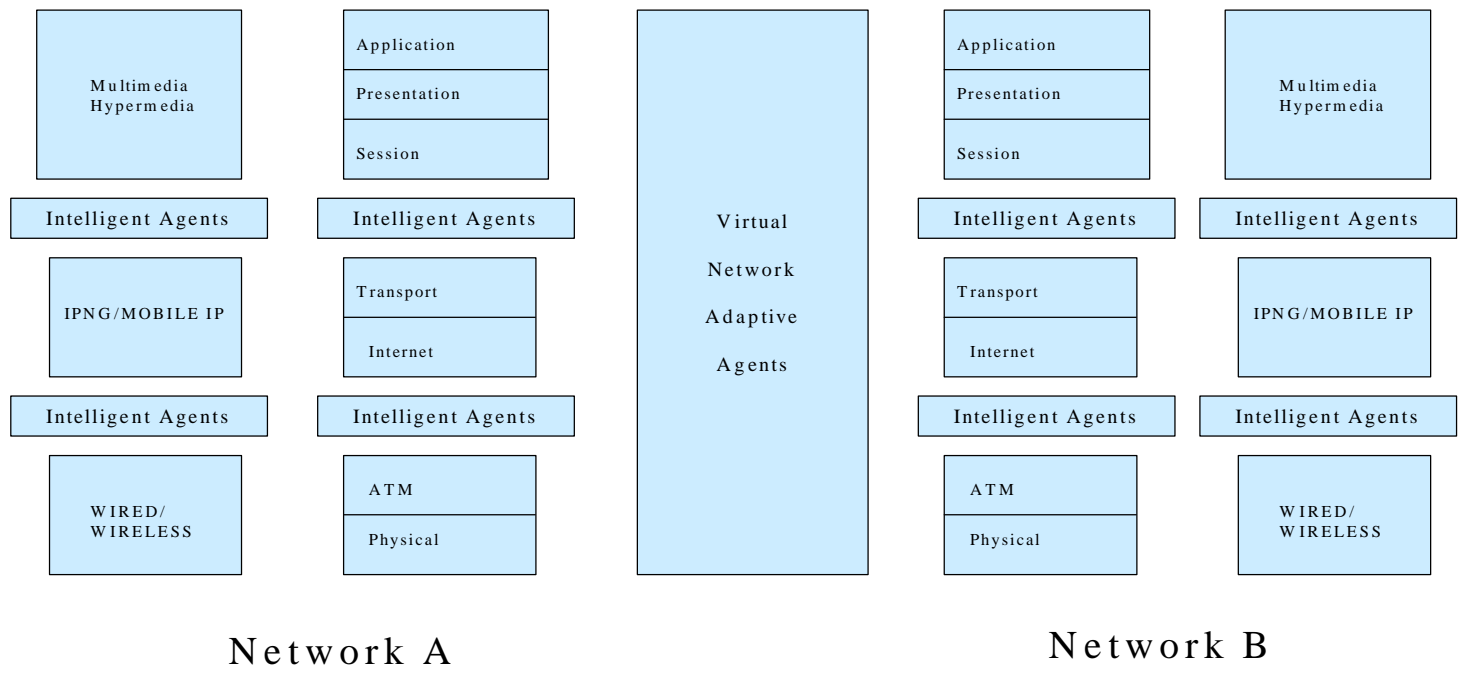
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Application	^ Application ^	Application
Presentation	^ SMTP ^	Presentation
Session	^ SNMP ^	Session
Transport	←-----TCP-----→	Transport
Network	←-----IP X.25-----→	Network
Link Control	←-----802.3-----→	Link Control
Physical	←-----Serial-----→	Physical

Network A Network B

Table 1. ISO OSI Model

Agent Based OSI Model



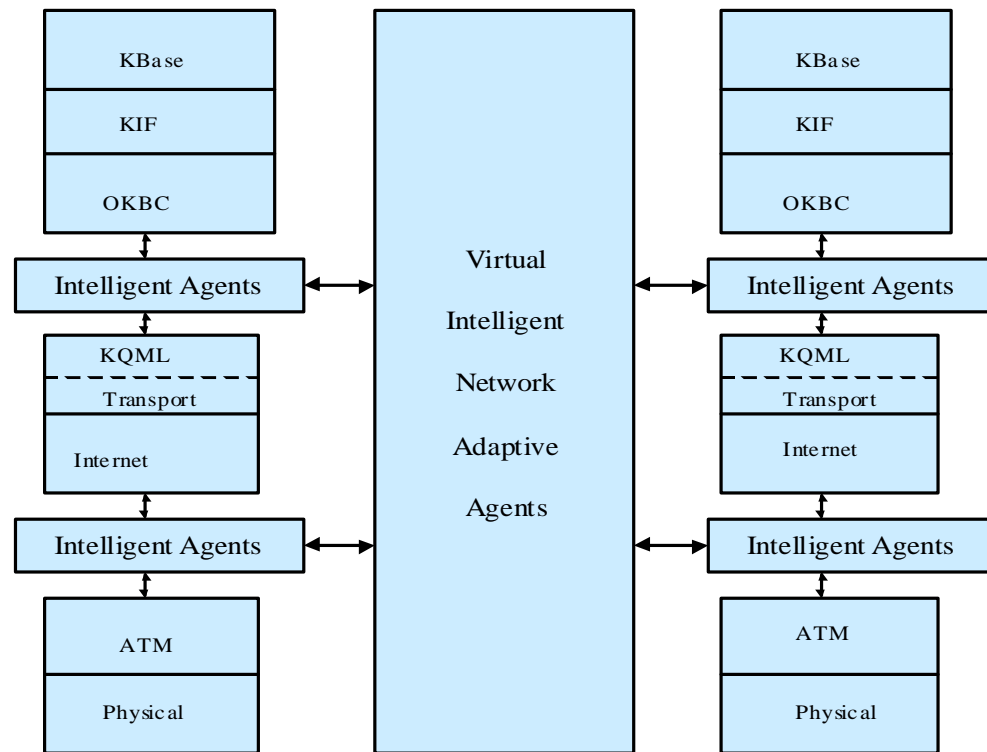
(based on Chorafas, P. 123)

- ◆ User-Agent

- ◆ Agent Communication Languages
 - Knowledge Query Manipulation Language

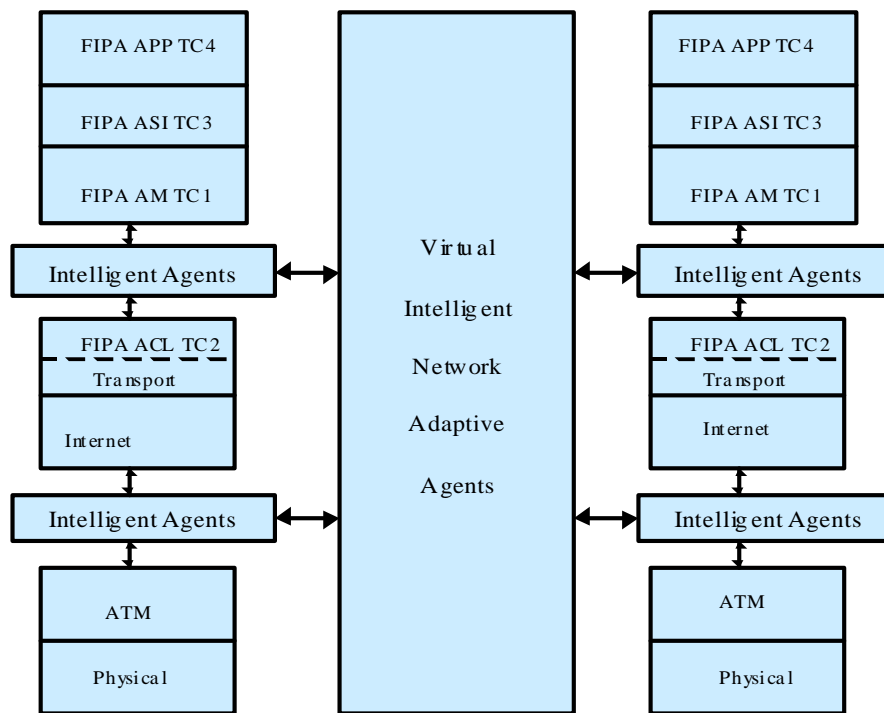
 - Foundation for Intelligent Physical Agents ACL

 - Extensible Markup Language



Network A

Network B



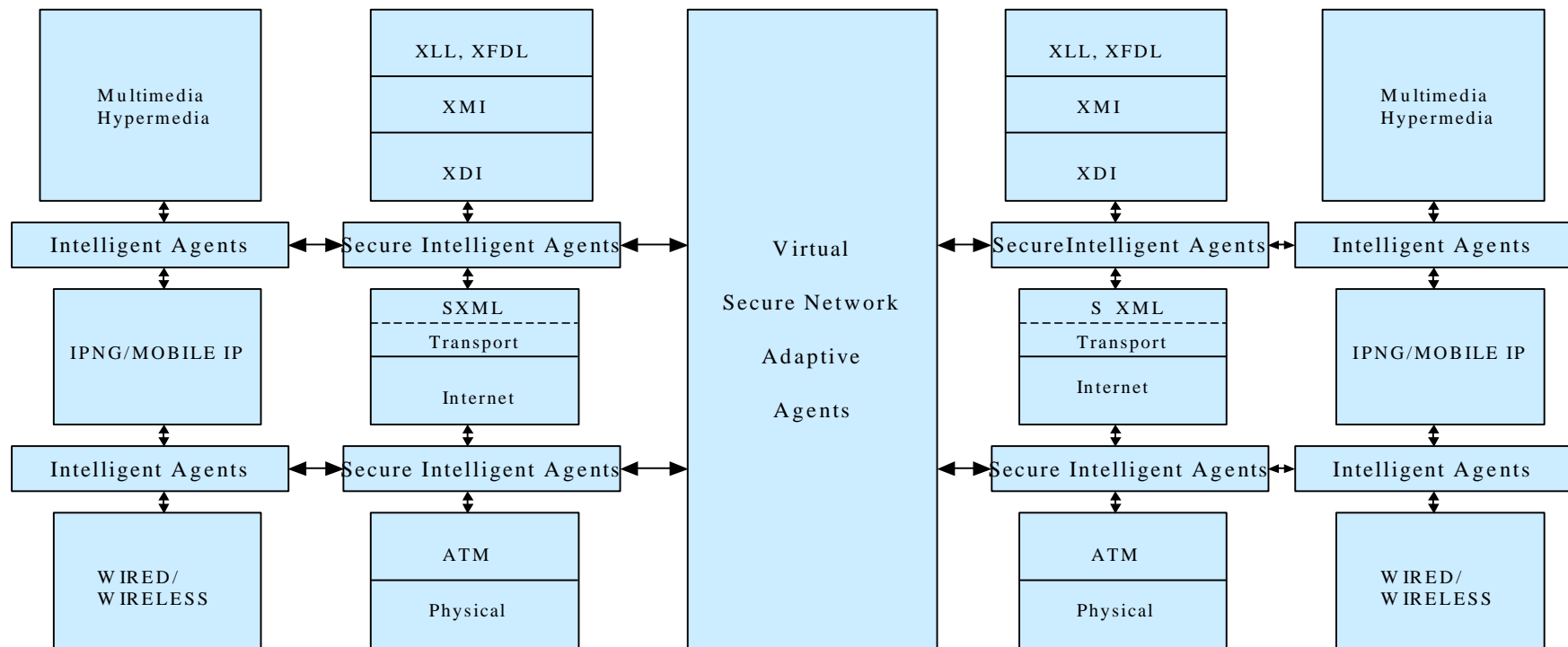
Network A

Network B

Secure XML Intelligent Network Telecommunications Stack



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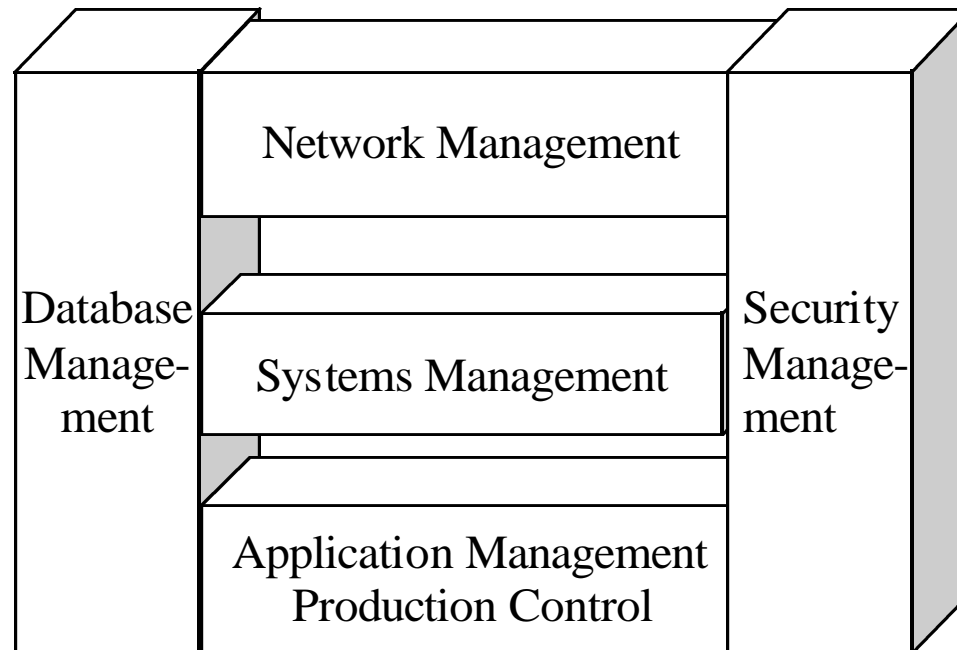
Network A

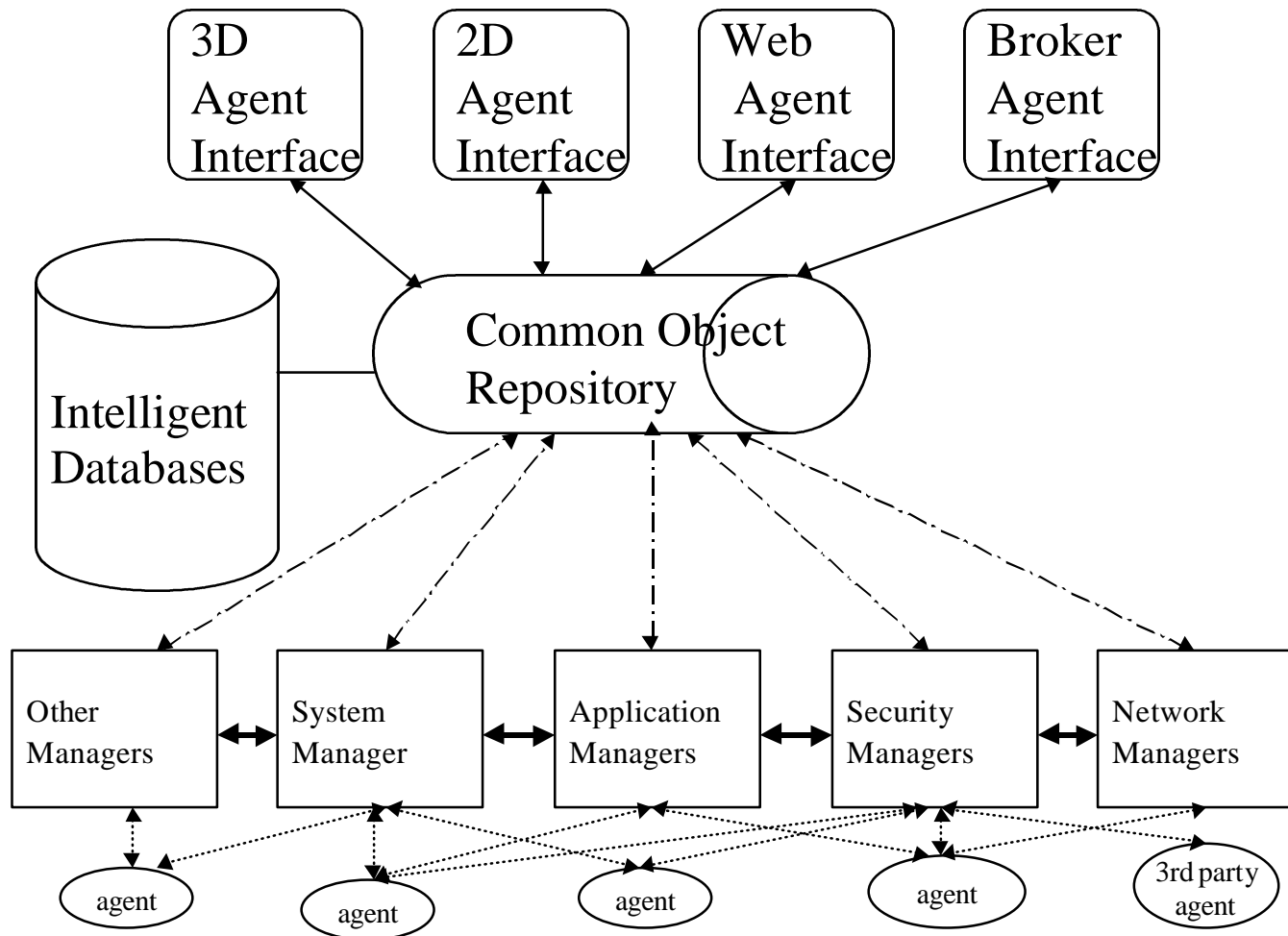
Network B



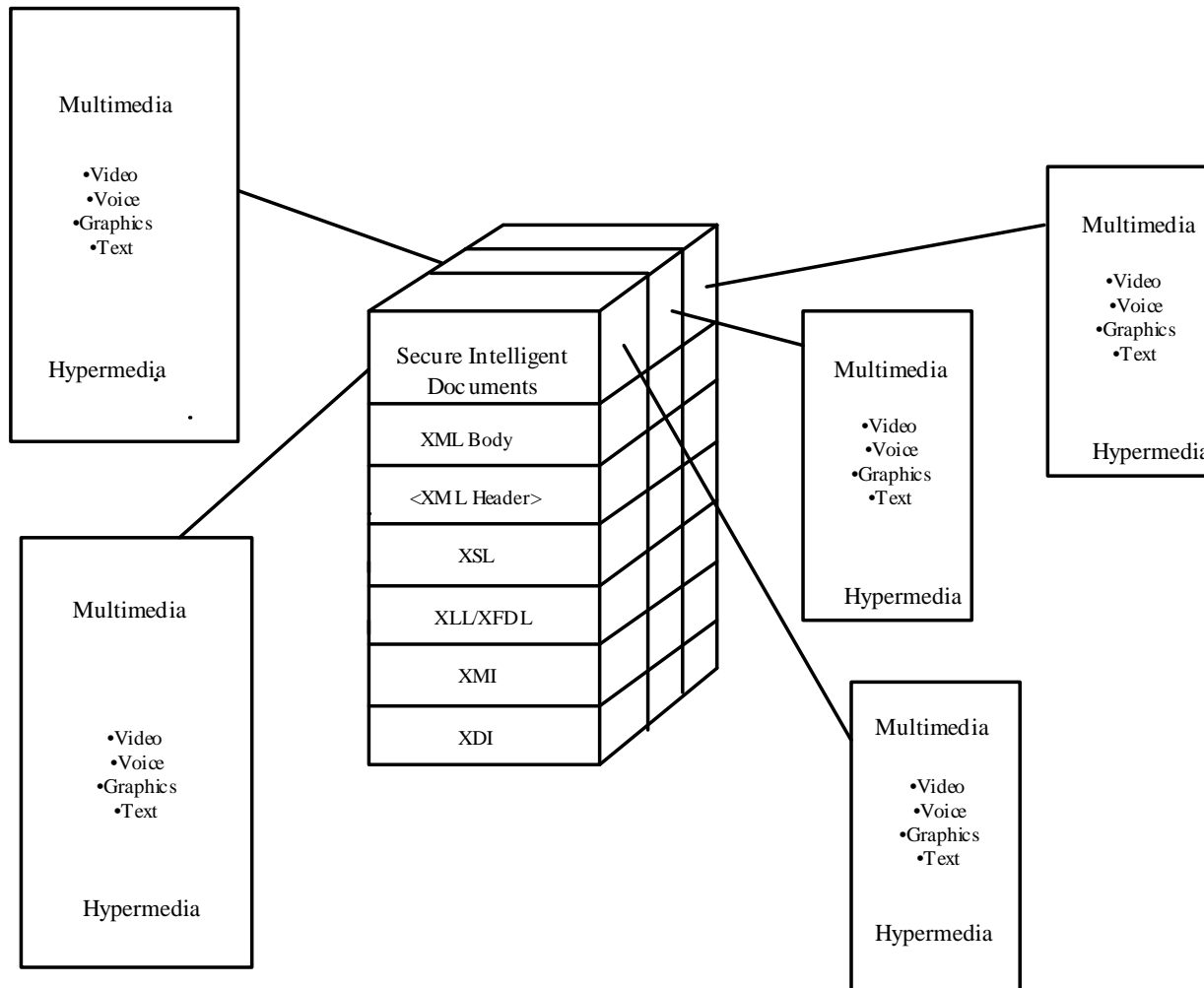
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Secure Intelligent Documents Infrastructure Model



Conclusions



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- ◆ Secure Intelligent Internet Communications
- ◆ Secure Intelligent Documents as Intelligent Agents using XML
- ◆ Secure B2B electronic commerce
- ◆ Secure Intelligent Extranet Communications

- ◆ Secure Intelligent Internet
- ◆ Secure Intelligent Communication over Secure Intelligent Networks
- ◆ Secure Intelligent Document Infrastructure Architecture