



**Poseidon House
Castle Park
Cambridge CB3 0RD
United Kingdom**

TELEPHONE:
INTERNATIONAL:
FAX:
E-MAIL:

**Cambridge (01223) 515010
+44 1223 515010
+44 1223 359779
apm@ansa.co.uk**

ANSA Phase III

A View of the Future

Andrew Herbert

Abstract

A presentation on the role of federated distributed objects in open networks for electronic commerce.

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A View of the Future

Federated Intelligent Objects

Andrew Herbert

Architecture Projects Management Ltd

ANSA Chief Architect



Contents

- **Wide spread Electronic Commerce**
 - *Technologies, Opportunities, Requirements*
- **Distributed Object Technology**
 - *For systems integration*
 - *Interoperability and management of federated systems*
- **Active Content**
 - *What next in objects?*
- **Security Issues**



WIDE SPREAD ELECTRONIC COMMERCE

UK FORE*Sight*

- **Characteristics**

- **Turbulence, Discontinuities**
- **Pervasive**
- **Generic**
- **Disruptive**
- **Fast/Slow paradox**
- **Communications**
- **Content**
- **Software**
- **Electronic Systems Design**
- **Global Markets**

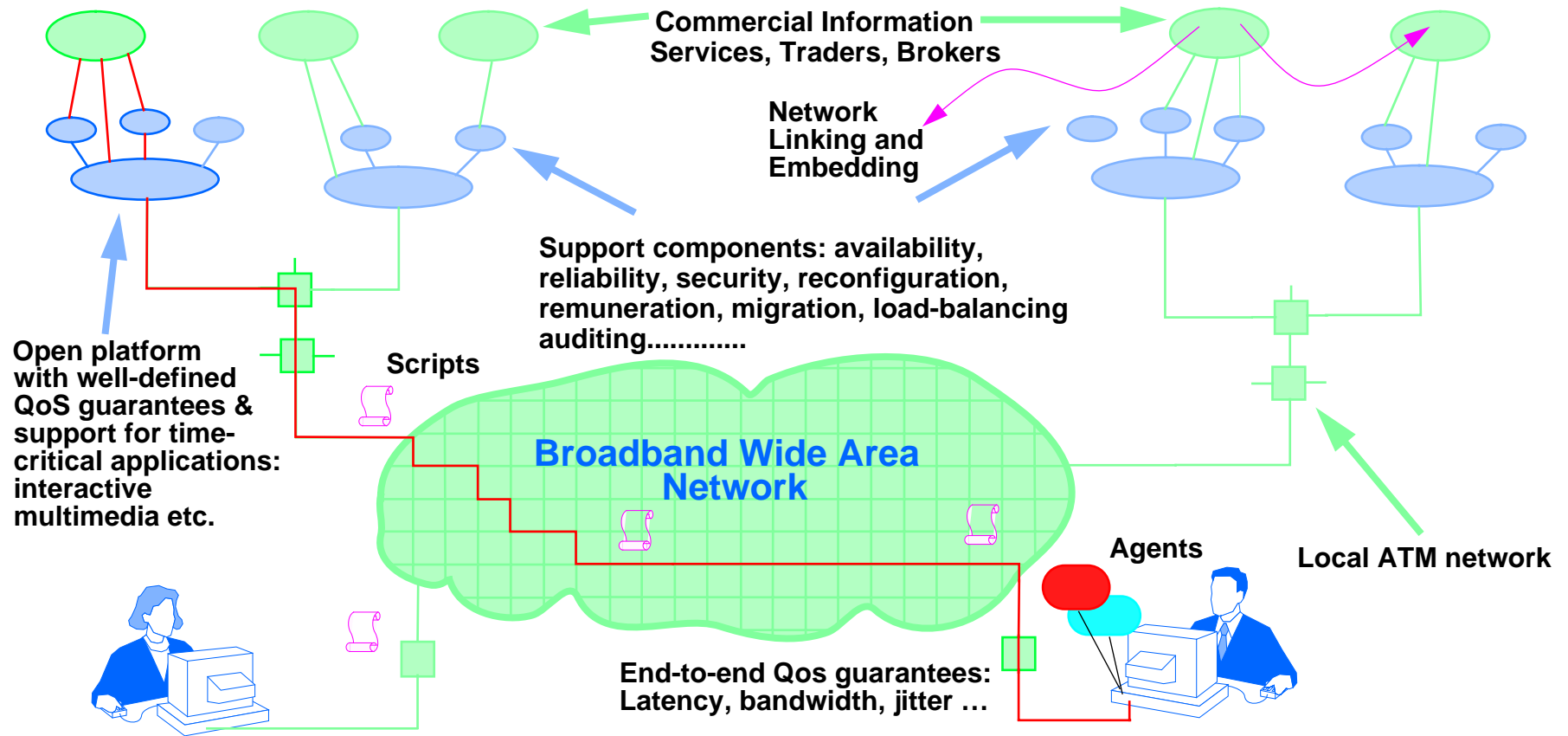
- **Pervasive, Generic Disruptive technologies**

- **Embedded ITEC**
- **ITEC in every sector**
- **Information Infrastructure**
- **Information Businesses**

- **Discontinuities**

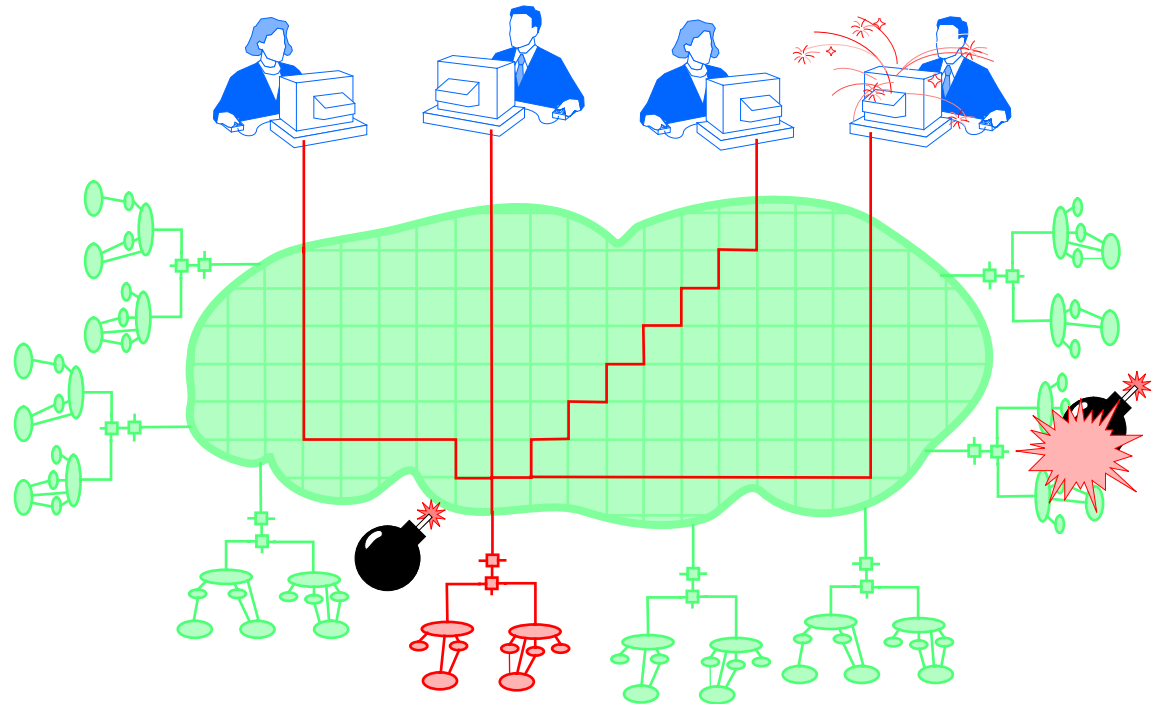
- **Connectivity : Info Superhighway**
- **Content : Images, Voice, Video**
- **Services : Buying, Selling**
- **Consumer : Price, Performance, Portability**

Infrastructure for Electronic Commerce



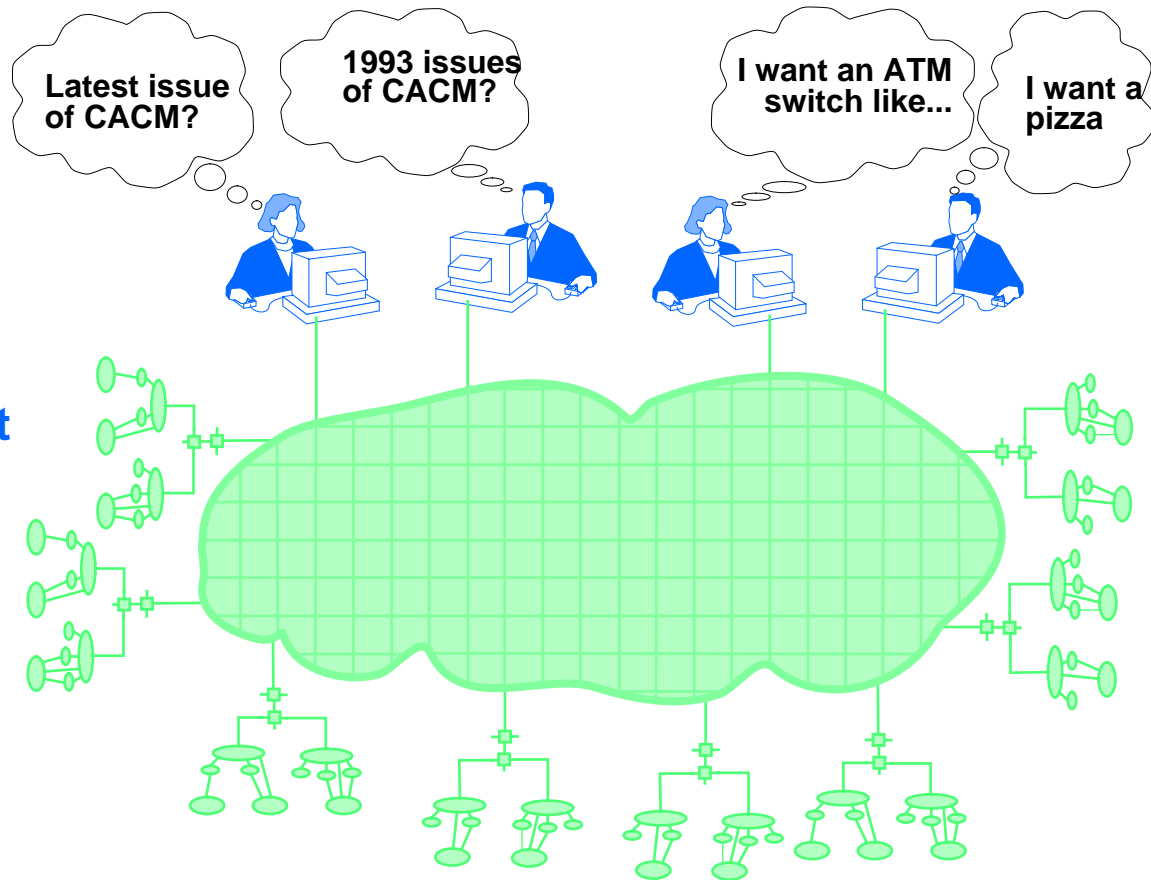
What are the Infrastructure Success Factors?

- Resource control
- Dependability
- Interactive Multi-media
- Ubiquitous connectivity
- Security
- Remuneration



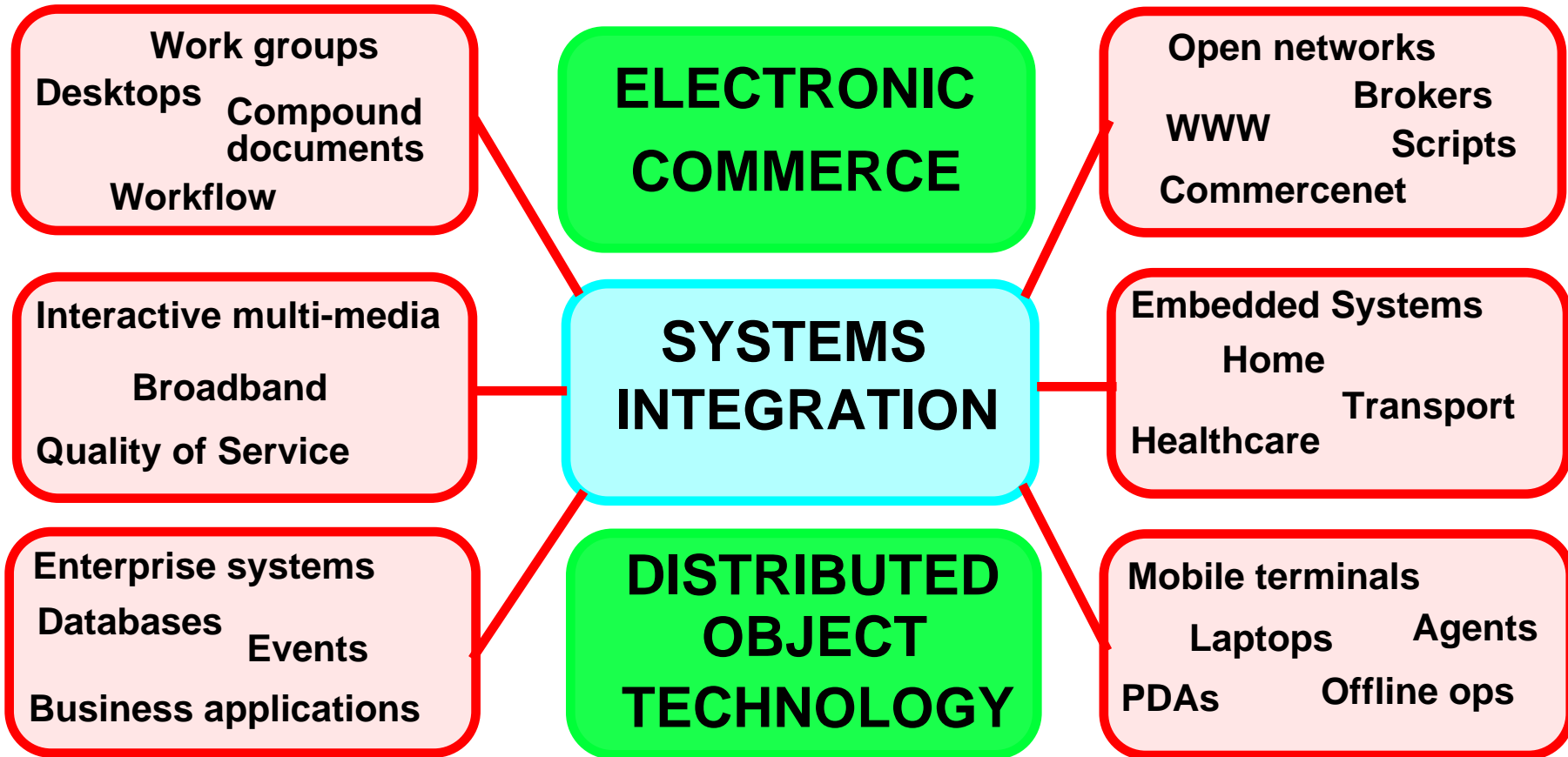
What are the Application Success Factors

- Trading & naming
- Agents & brokers
- Fast service development & deployment
- Multi-party, federated collaboration





The Systems Integration Challenge



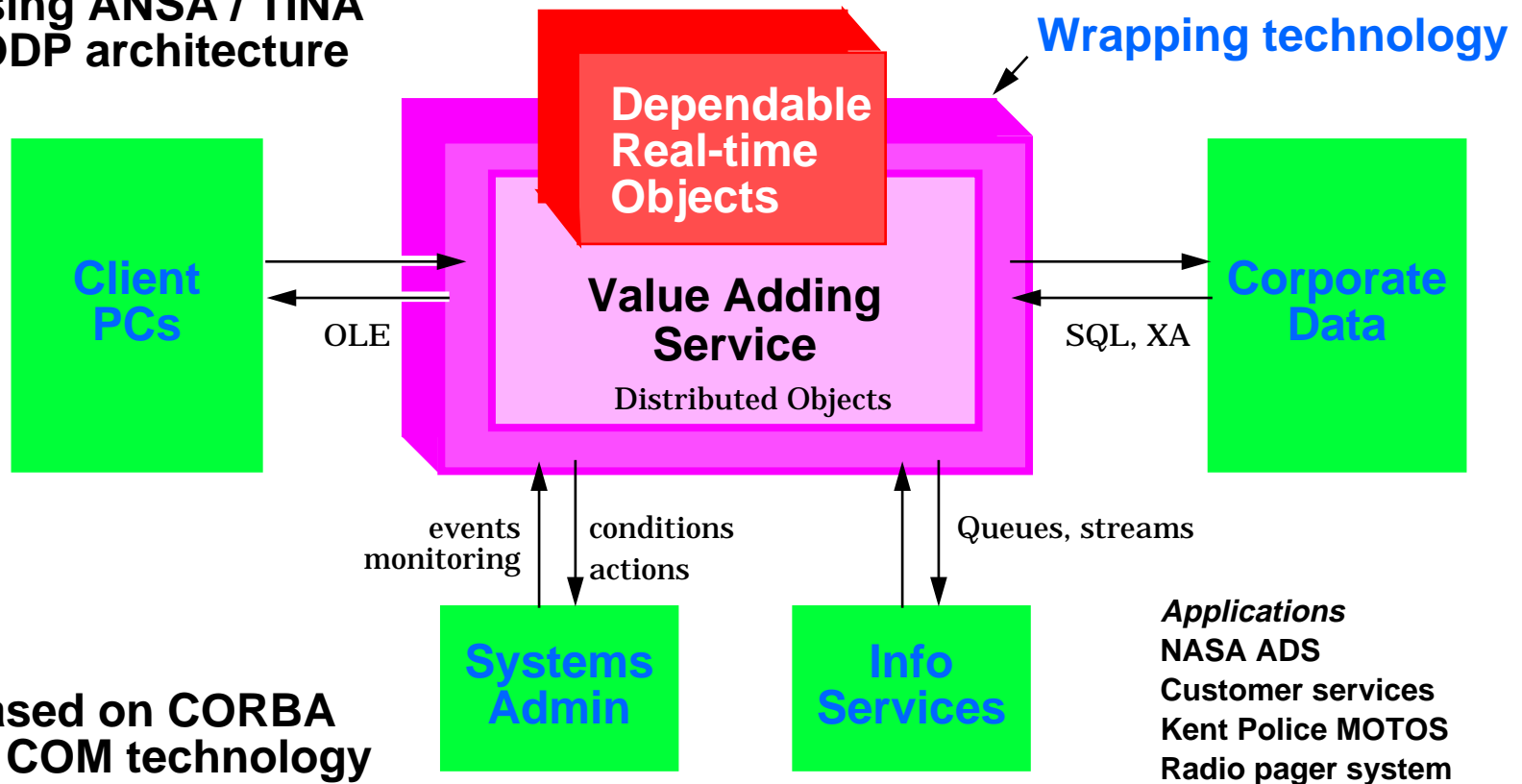


DISTRIBUTED OBJECT TECHNOLOGY



A Template for Distributed Object Systems

Using ANSA / TINA / ODP architecture



Based on CORBA or COM technology

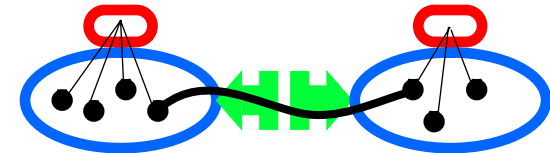
Applications
NASA ADS
Customer services
Kent Police MOTOS
Radio pager system



Distributed Object Architectures

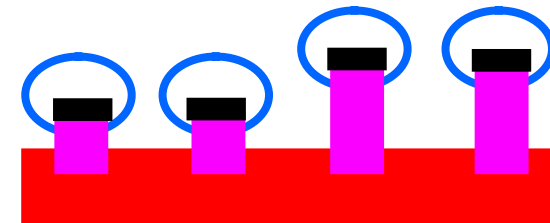
Trading and Federation

Configurable interoperability



Custom Infrastructure

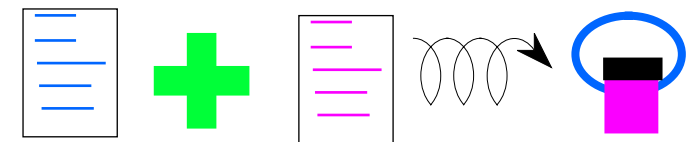
One size does not fit all



Abstract & Automate

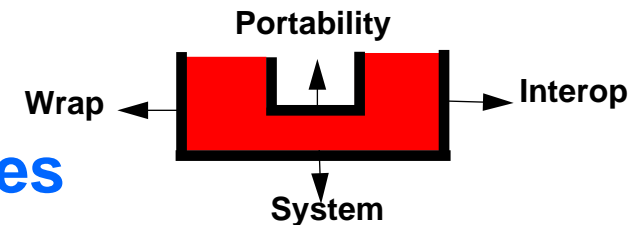
Tools replace APIs

Service Infrastructure



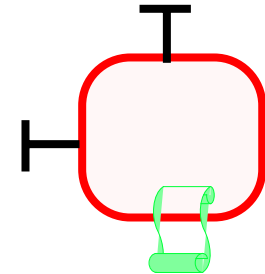
Modular Engineering

Architected internal interfaces

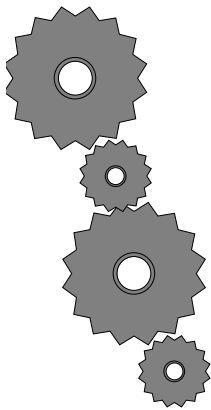


Active Content

- **Active content is data wrapped up as a *service***
 - data is encapsulated
 - service(s) provided at interfaces
 - organizational “meta data” kept alongside the object



- **Automated management**
 - event driven, rule based
 - objects may last for more than 100 years
 - incremental replacement and upgrade ‘in service’
 - strong, conformance based, extensible type schemes
 - objects protect themselves, objects manage themselves
 - service reference is the universal currency





SECURITY ISSUES

Copyright & IPR Protection

- **How to protect information and IPR**

- **Risk vs Cost**



- **Marked data and decoder**
 - how to avoid pocket full of cards problem?
 - decoded form must be low grade / volatile



- **Content aware networks**
 - content labelled streams get QoS guarantee
 - raw bits get punished
 - licensed transmitters, regulated router

- **Charging models**
 - access charges vs service charges
 - subscription - discourages casual users
 - per per use - requires charging infrastructure



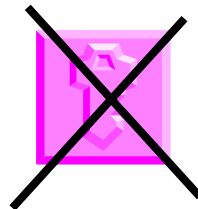
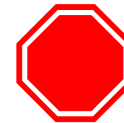
End-to-End Security

- **Authentication for charging**
 - bill to phone number vs smartcard in terminal



- **Integrity of business processes**
 - Clark-Wilson Model with auditing
 - one way functions good enough

- **Encryption for confidentiality**
 - trans-border issues



- **Impossibility of providing a sufficiently general purpose access control policy**