Market Managed Multiservice Internet

M3I

ist information society technologies

Market Managed Multi-service Internet

Project Overview & Architecture

Bob Briscoe, BT

IST Project No 11429 under the
EU Vth Framework Information Society Technologies Programme

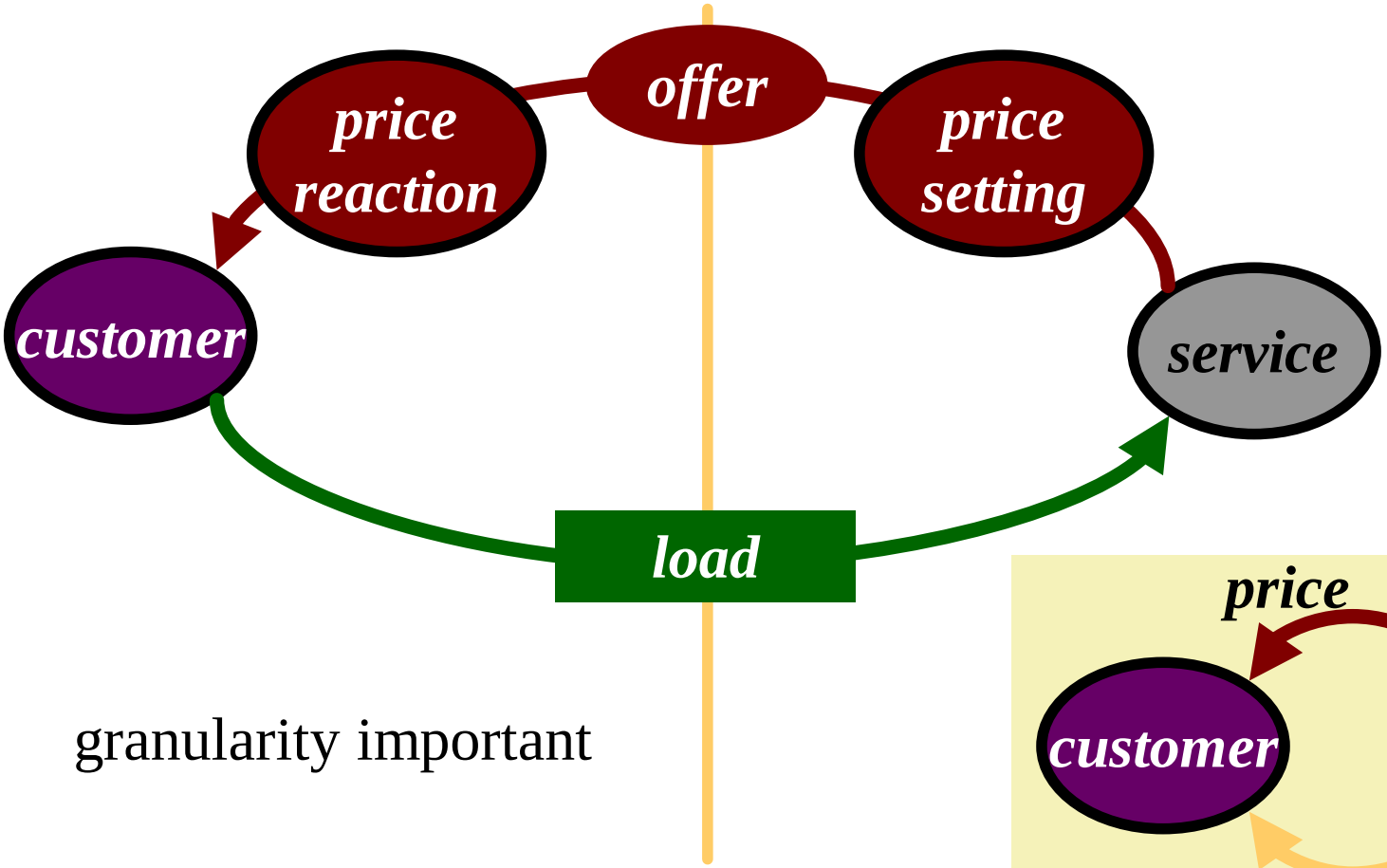
aim

- ***to self-manage Internet resources***
  - through market forces
- ***to show validity of approach through:***
  - economic and network modelling
  - software and network engineering design & prototyping
  - customer experiments

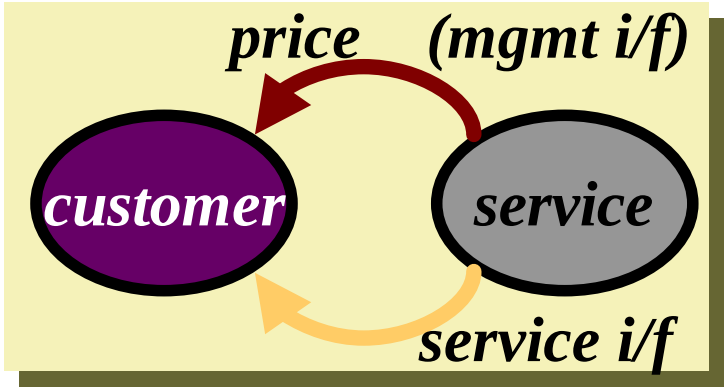
objectives

- ***for network customers***
  - more effective competition between providers over price & quality
  - reduced congestion
  - instantaneously increase quality demands without asking first
  - real-time feedback and validation of charges
- ***for network providers***
  - reduced management complexity
  - ability to charge flexibly
    to encourage responsible use of available QoS or multicast
  - ability to change tariffs and communicate them fast
  - ability to hold QoS in presence of bad congestion

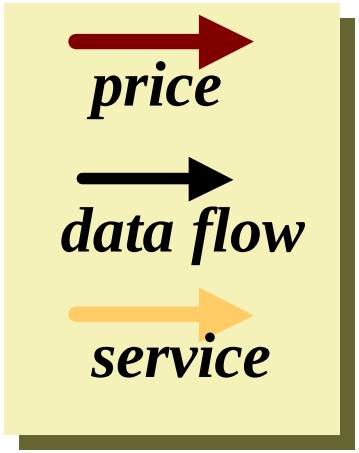
market approach

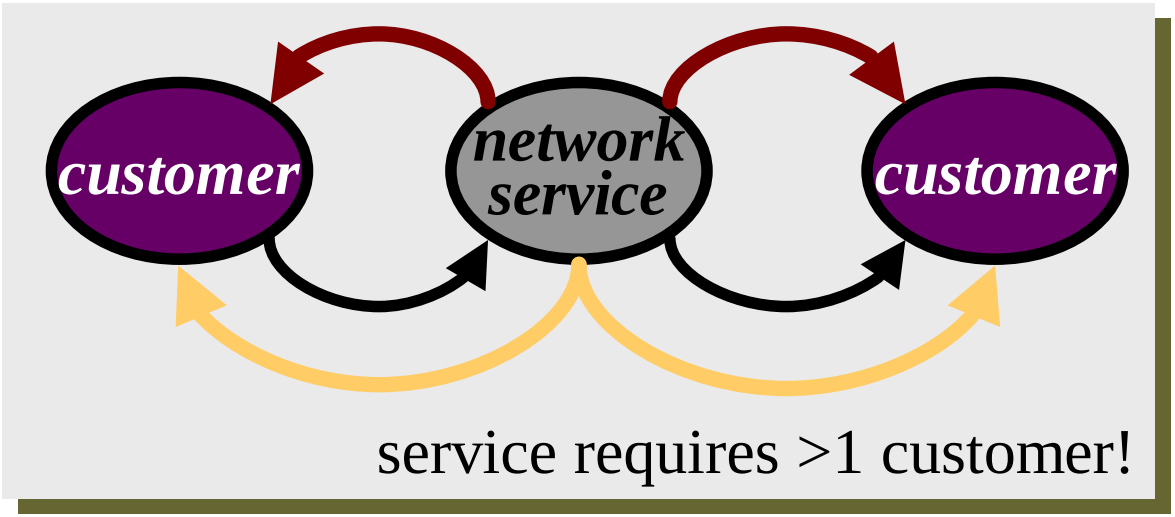


granularity important

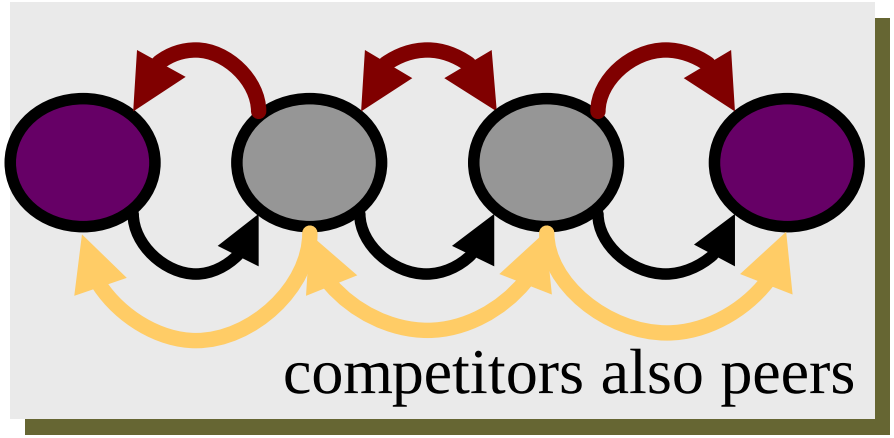


network service specifics

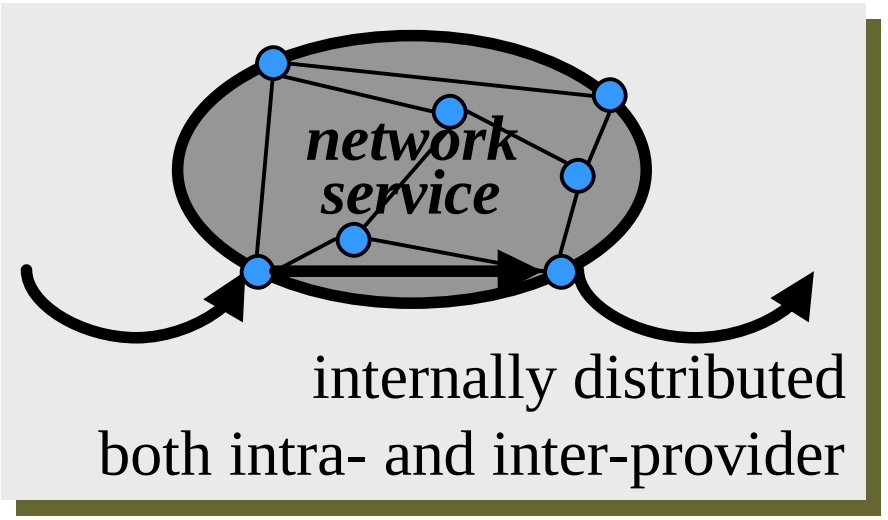




service requires >1 customer!



competitors also peers



internally distributed
both intra- and inter-provider

open approach

- ***business models***
  - not just 3 or 4 like the current ISP market
- ***customer service selection***
  - agent assisted
- ***technology platforms***
  - network
    - reservation signalling (RSVP), diffserv, explicit congestion notification (ECN)
  - systems
    - CORBA intra-domain allowed, but not inter-domain

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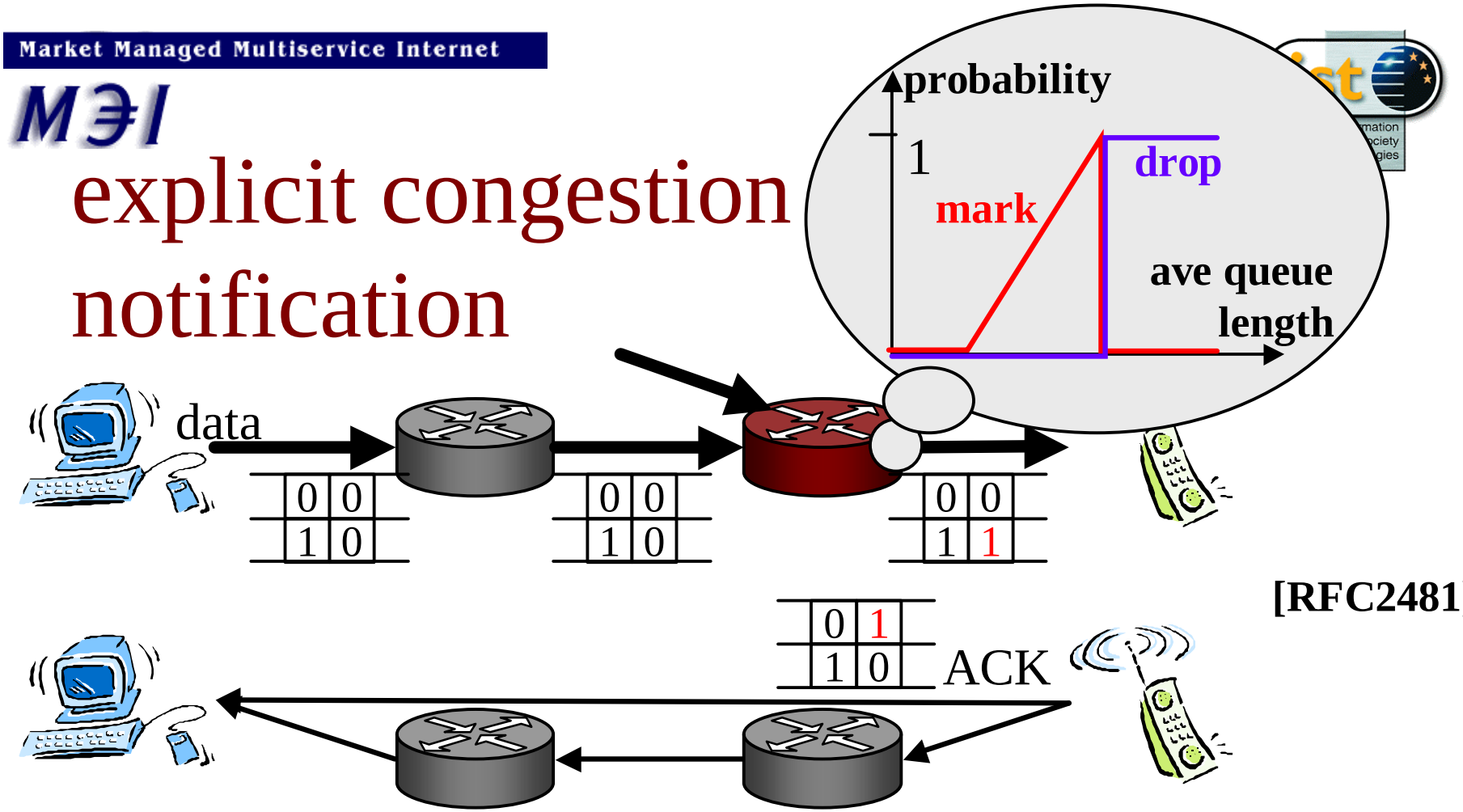
explicit congestion notification



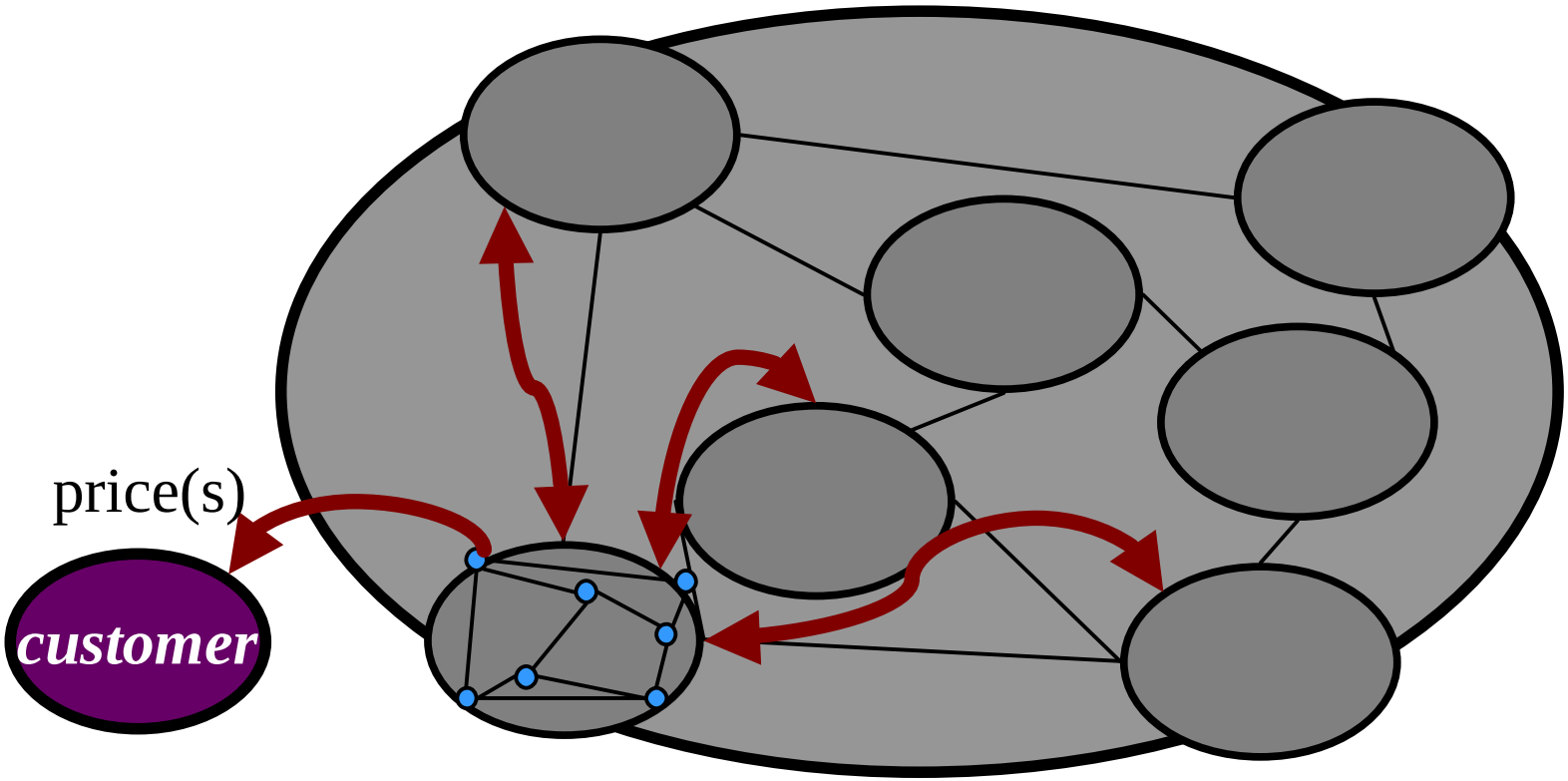
[RFC2481]

Congestion Win. Reduced;	Echo	CWR	Echo	bits 8 & 9 of **TCP** reserved
ECN Capable Transport;	Congestion Experienced	ECT	CE	bits 6 & 7 of **IP** DS byte

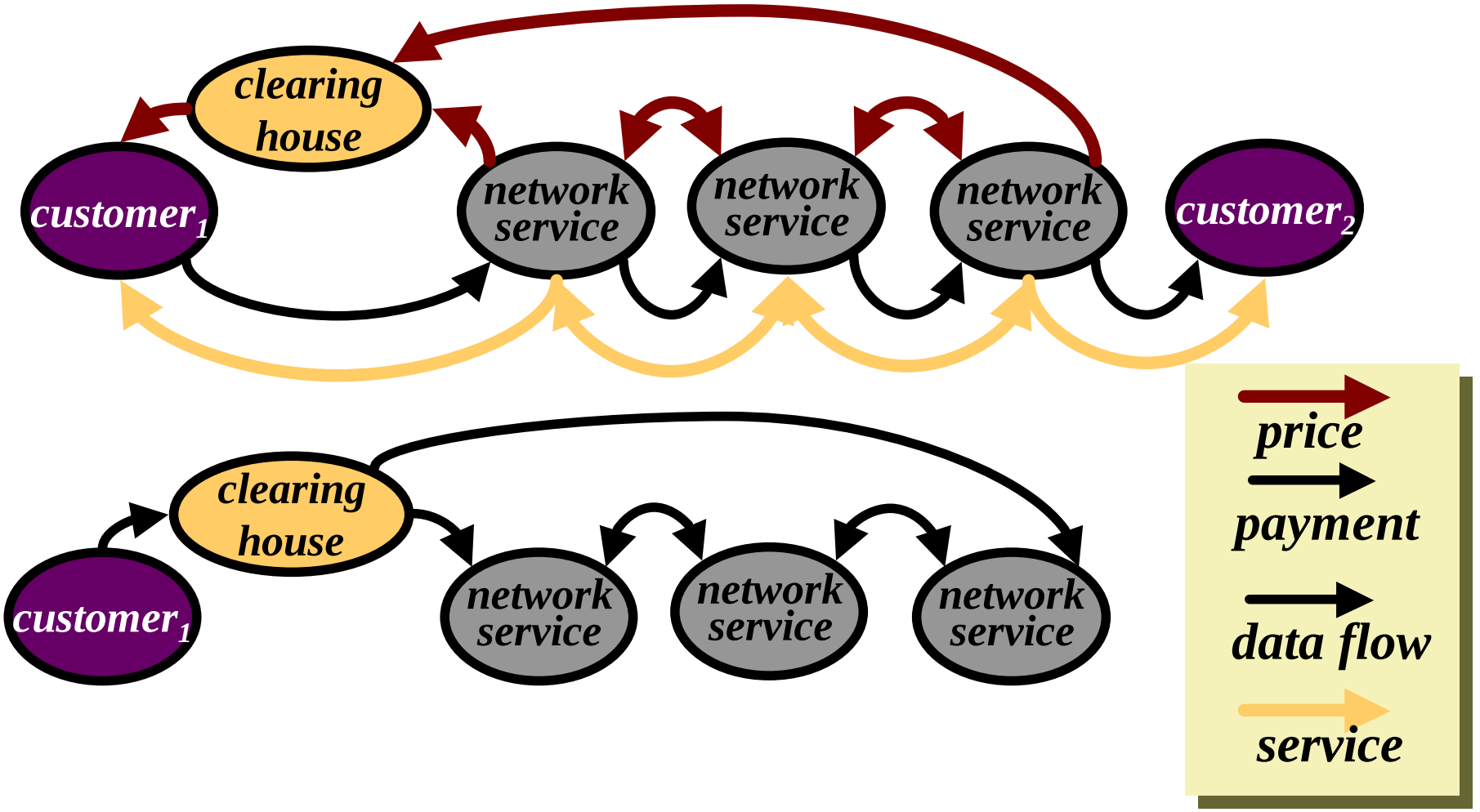
important secondary aim

- ***given fine-grained price control with ECN is economically and mathematically optimal…***
  - …can it underpin a fully flexible commercial environment?
  - …that fits all the desires of providers and customers?
  - …and is it practical?

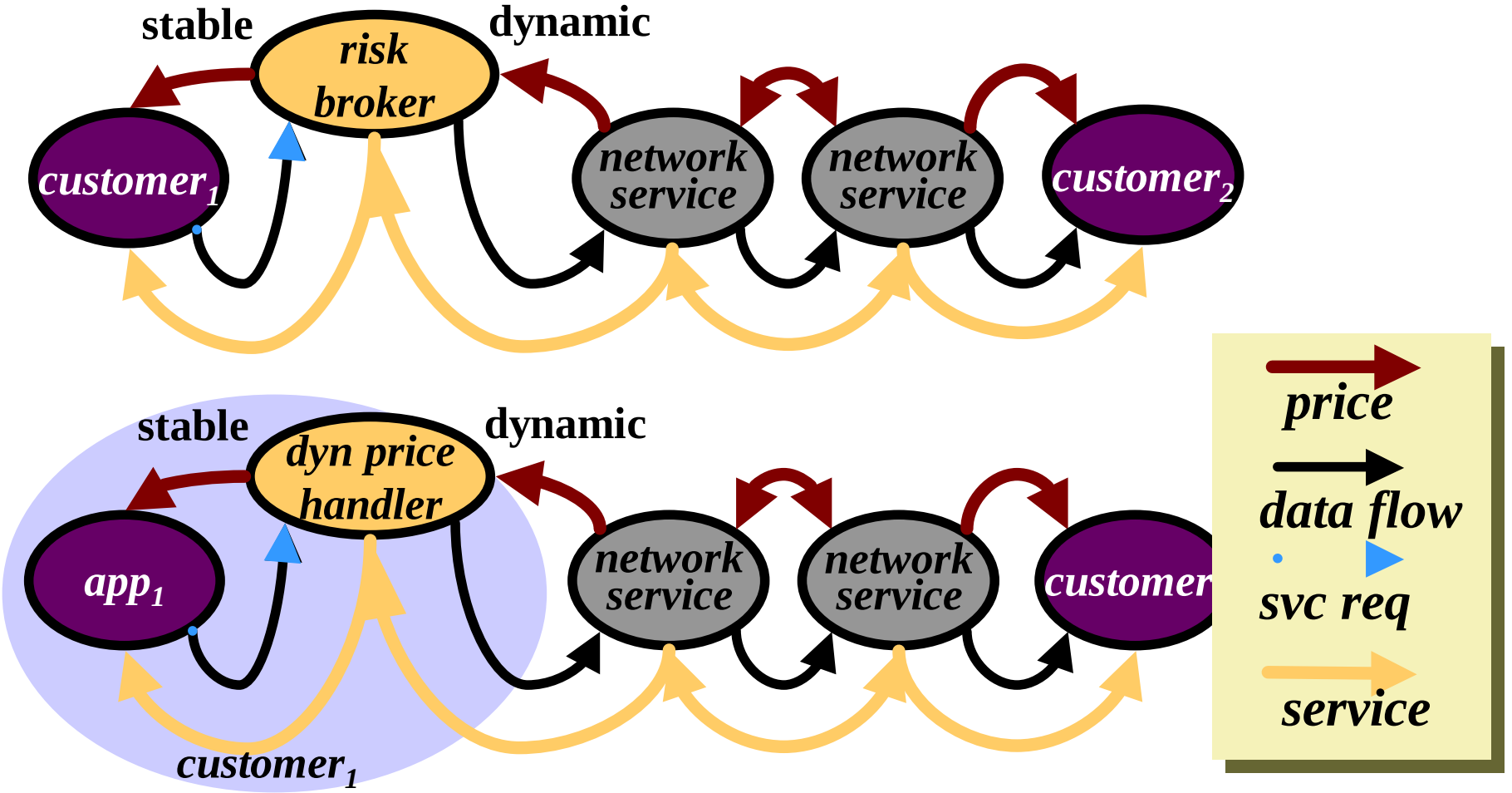
edge pricing
decoupling for openness



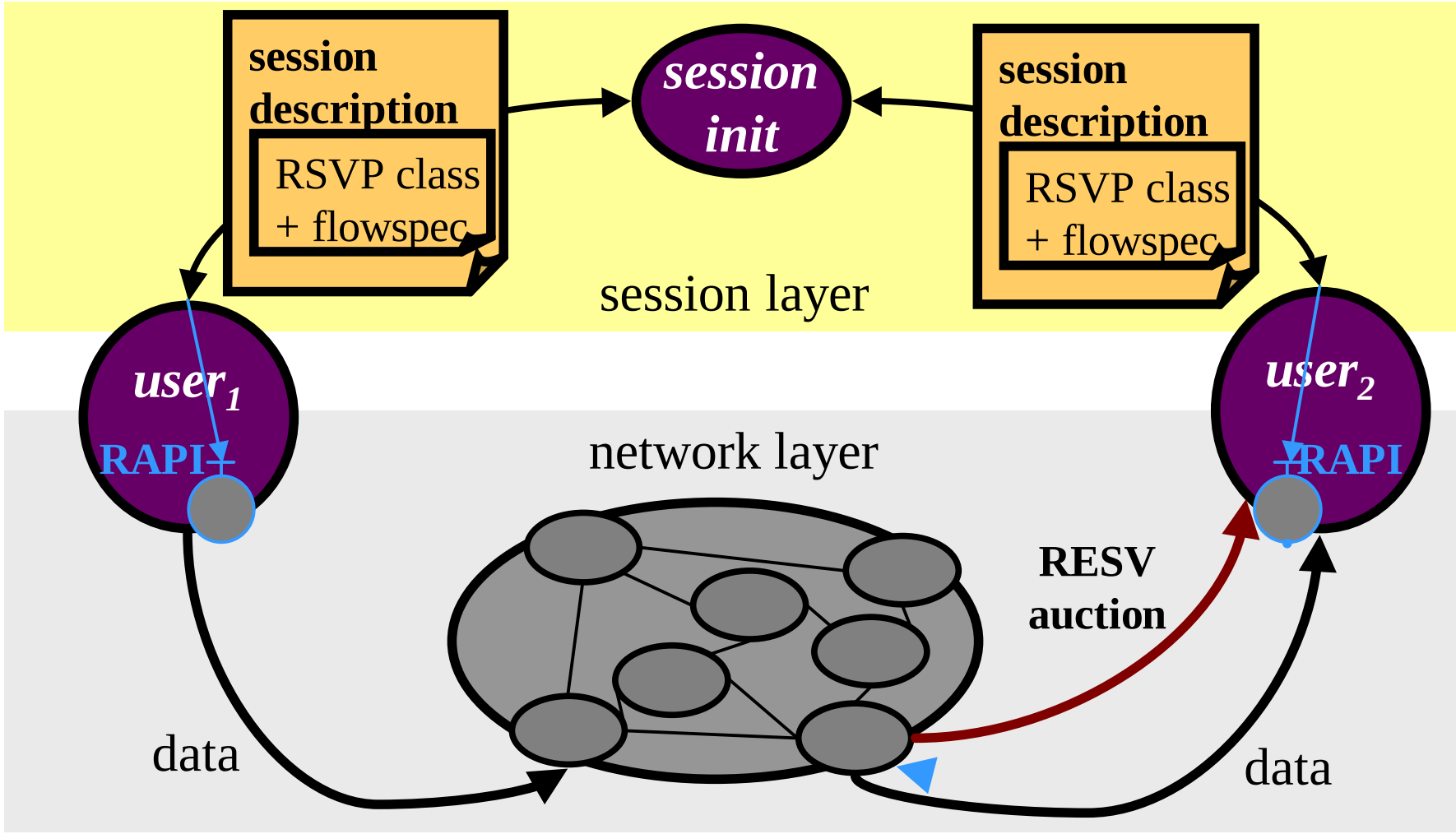
scenarios - clearinghouse



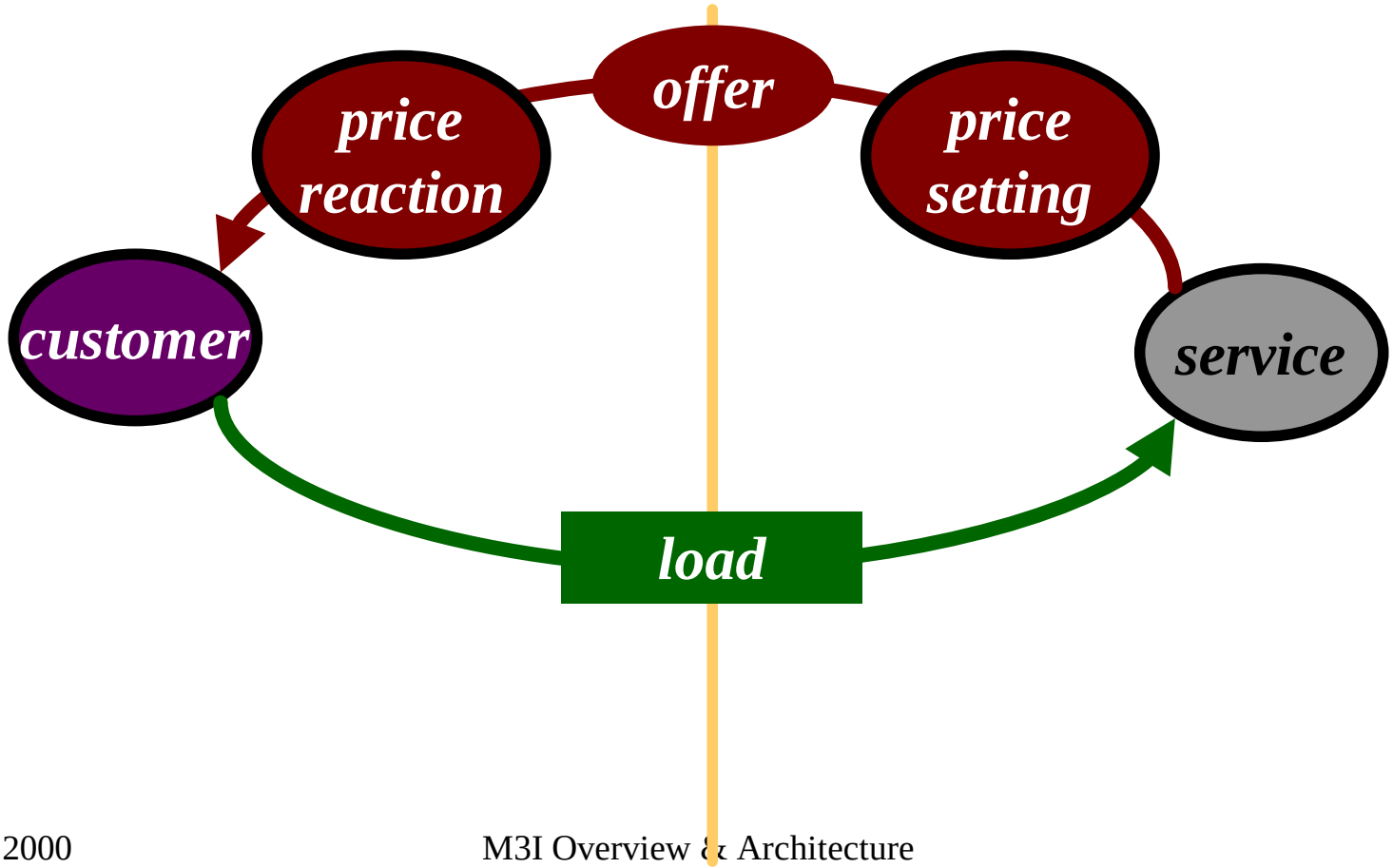
scenarios - guaranteed service provider



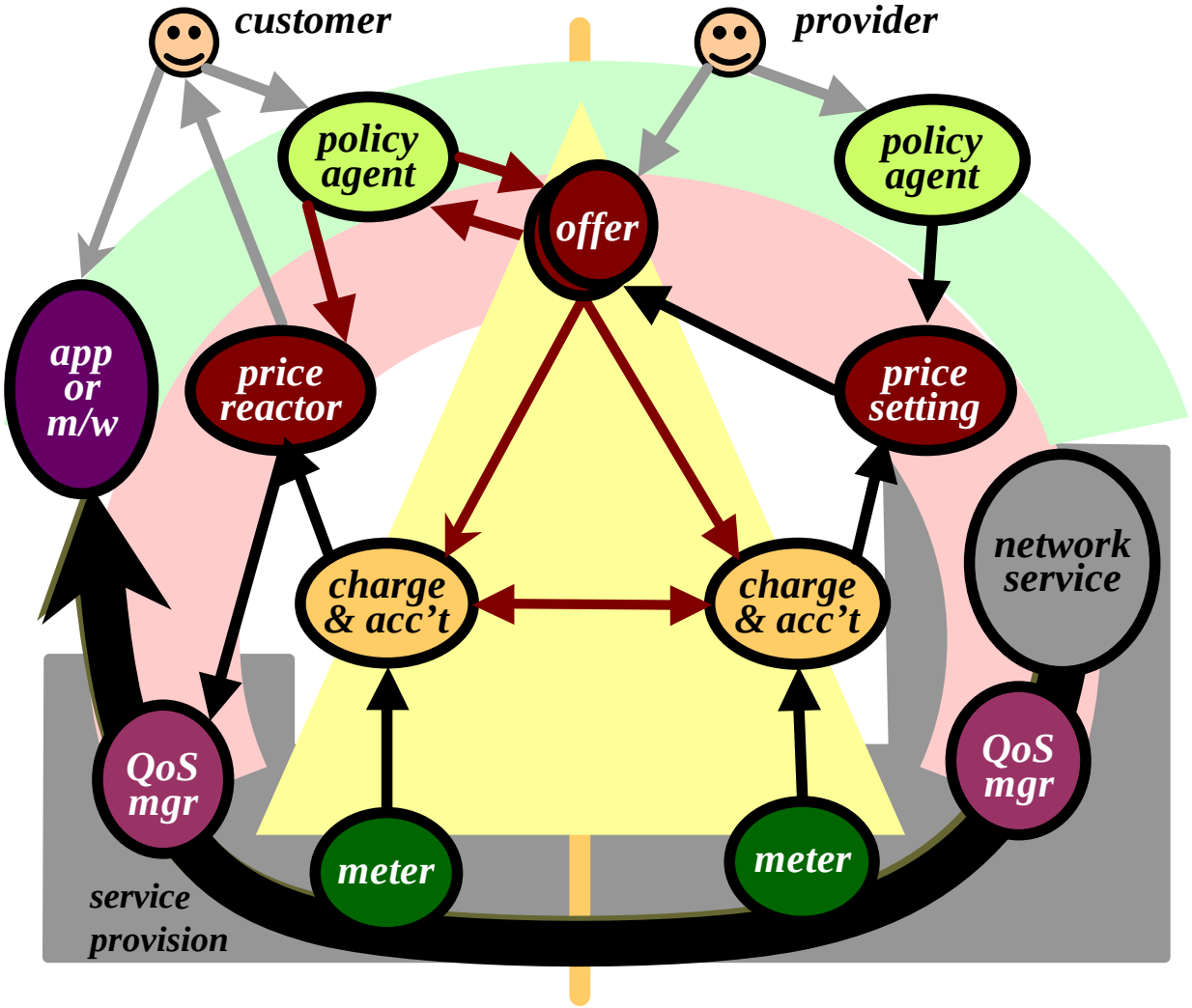
reservation protocol vs. API



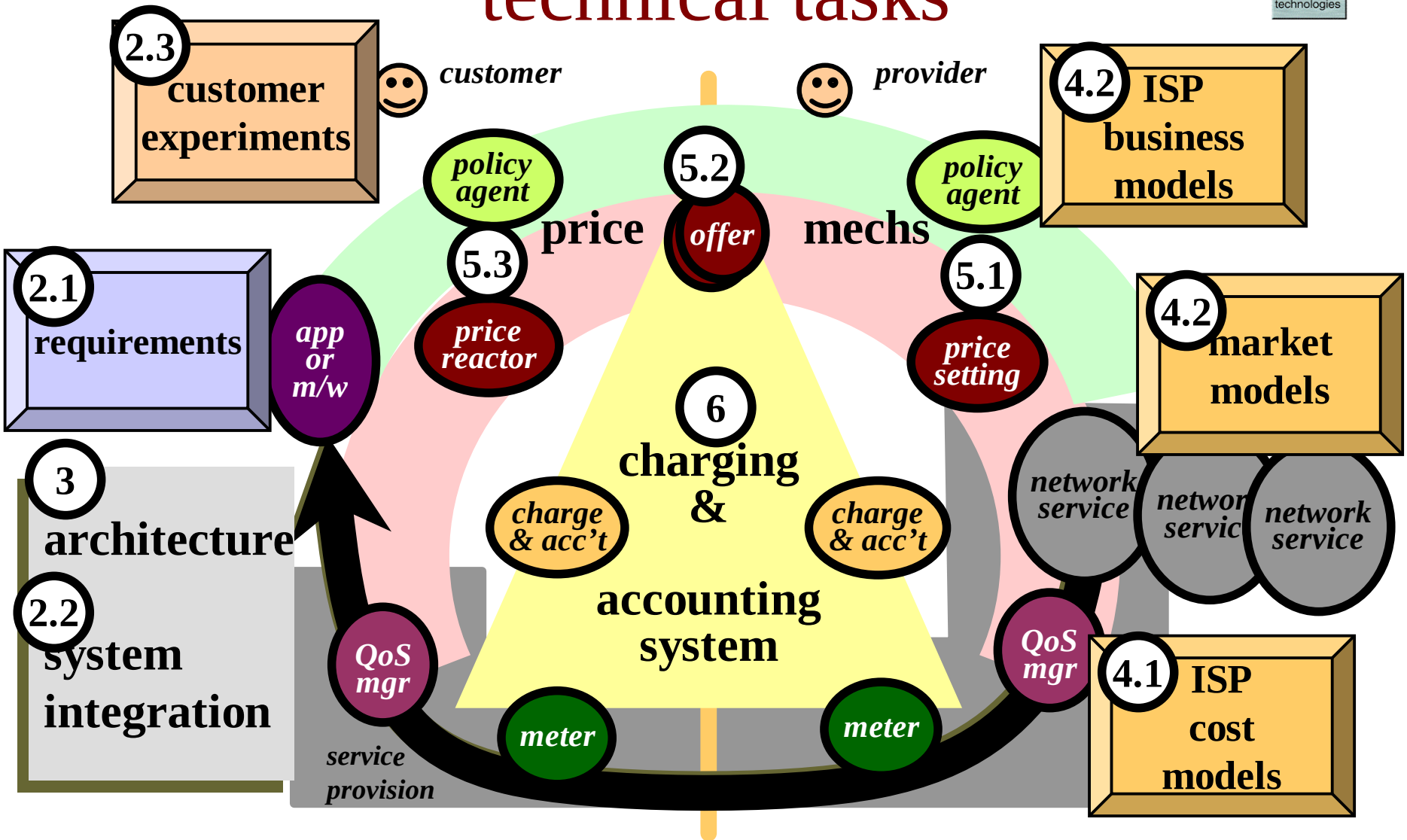
market control loop - heart of architecture



top level architecture



technical tasks



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partners & responsibilities

ist information society technologies

- ***Hewlett-Packard Ltd, Bristol, UK***
  - Project Coordinator, System Integration
- ***BT, UK***
  - Project Technical Authority, Architecture, Price Reaction, Competitive Market Modelling, Customer experiments
- ***Telenor, Oslo, NO***
  - Requirements and Validation, Customer Experiments
- ***Athens University of Economics and Business, GR***
  - Modelling, specifically ISP Business Modelling & Market Modelling
- ***Eidgenössische Technische Hochschule, Zürich, CH***
  - Charging and Accounting System, ISP Cost Modelling
- ***Darmstadt University of Technology, DE***
  - Pricing Mechanisms, Network Layer Technology

summary

- ***minimise then synthesise***
  - business models
  - engineering
- ***component analogy***

more info

- ***M3I project***
  - 01 January 2000 - 31 December 2001
  - builds on the ACTS CA$Hman project [Songhurst 99], but more emphasis on openness
- ***contacts, background and first deliverables:***
  - http://www.m3i.org/

- [Songhurst99] DJ Songhurst (ed) “Charging Cummunication Networks”, Elsevier ISBN 0444502750