

Broadband Working Group Overview

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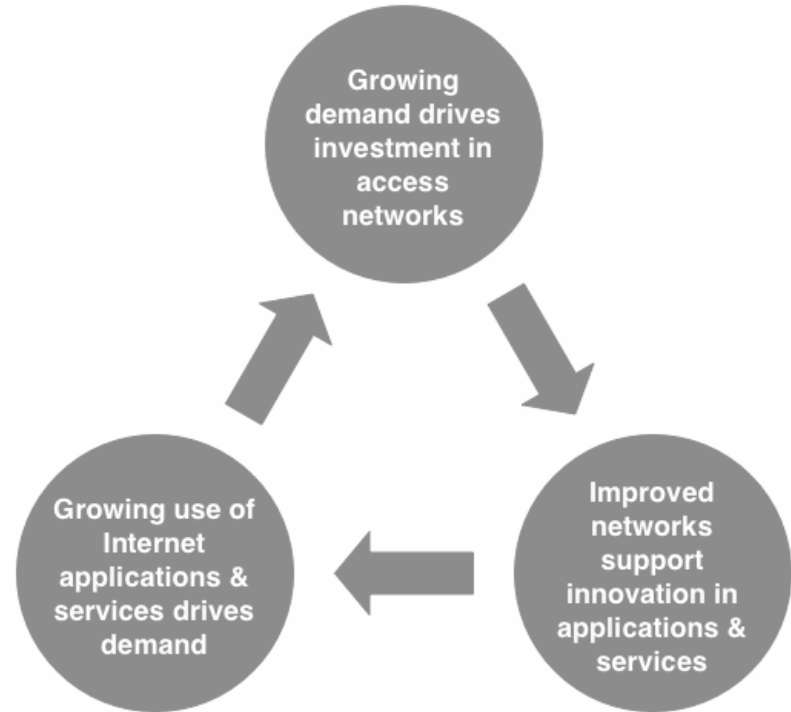
Broadband Working Group Co-Chairs

MIT Communications Futures Program (CFP)

January 2006

MIT CFP Broadband Working Group

- **John Watlington, France Telecom, Industry Co-Chair**
- **Charter: “Virtuous Cycle” as broadband ideal**
 - Promote investments so BB follows Moore’s Law
 - Stimulate growth opportunities through value chain coordination
 - Economics, business models, pricing, policy etc. in addition to technology
- **Meeting since November 2004**
 - Members email list
 - Conference calls ~2x/month
 - In-person workshops ~2x/year
 - <http://cfp.mit.edu/groups/broadband/broadband.html>
- **Focus topics**
 - **Broadband Incentive: Problem Definition White paper, released September 2005**
 - **Personal Broadband: Vision White Paper, released January 2006**



Agenda

- **2:30 Overview**
 - John Watlington, FT and Sharon Gillett, MIT
- **3:00 Personal Broadband**
 - Vision White Paper: Dan Dahle, Intel; Sharon Gillett, MIT
 - Architecture Update: Elisabeth Maida, MIT
 - Brief Testbed follow-up: Dirk Trossen, Nokia
- **3:45 Broadband Incentive: Problem and Solutions**
 - Network Optimization Proposal: Steve Cassidy, BT and Dan Dahle, Intel
 - Brief discussion of location of follow-on work within CFP/CRN
- **Friday 8-11 AM, January 20**
 - In-depth discussion among regular BBWG participants. Primary topics for discussion include personal BB testbed follow up, network optimization proposal, and nature and location of bb incentive solutions work within CFP.

Broadband Internet: Not your father's telecom

- Vertically Integrated Carriers
- Static Service
- Intelligent Networks
- Regulated Rate of Return

Old World Order

TUSSLE

Carrier Dream World

- Vertically Integrated Carriers
- Controlled Introduction of Services
- Multi-optimized Networks
- Predictable Return on Investment

New World Order

- Fragmented Value Chain
- Dynamic Services
- Stupid Networks
- Risk and Volatility

Indicators of Transition

Old World Order

- **Major Carrier Investments**
 - FTTX (Verizon esp.)
 - Desperately seeking ROI
- **Plans to charge tolls**
 - SBC flap
 - Attack on Akamai?
 - Needs E2E QoS?
- **Regulatory**
 - Discrimination OK
- **Service Bundling**
 - Warner-Sprint

- **Unconventional Competitors**
 - Users (edge)
 - Cities (wholesale network utility)
 - Content providers (Google)
 - Service providers (eBay-Skype)
- **Experimental Value Location**
 - Cost savings (edge)
 - Economic growth (utility)
 - Content (ads)
 - Services (auctions)
 - Personalization potential

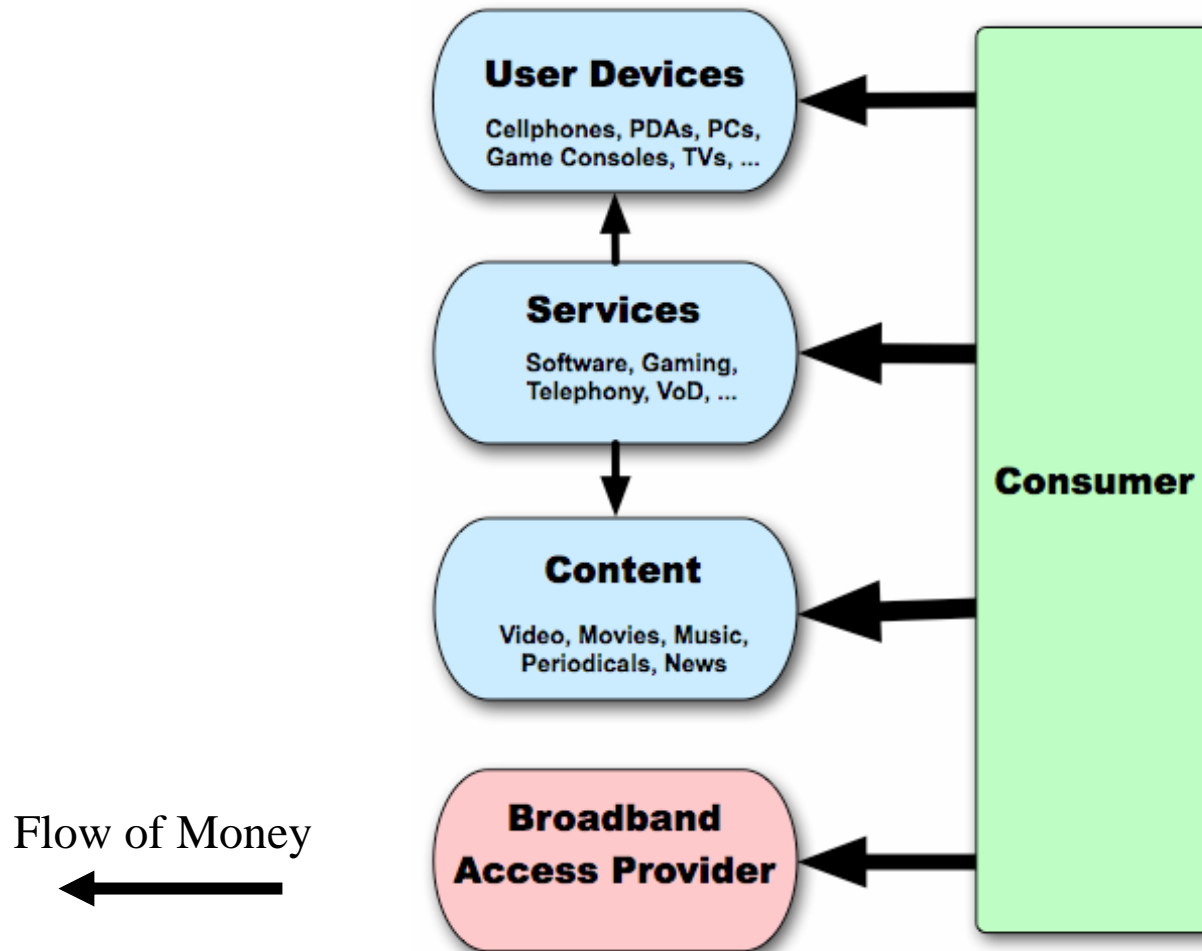
TUSSLE

Carrier Dream World

New World Order

Broadband Incentive Problem: The Search for Solutions

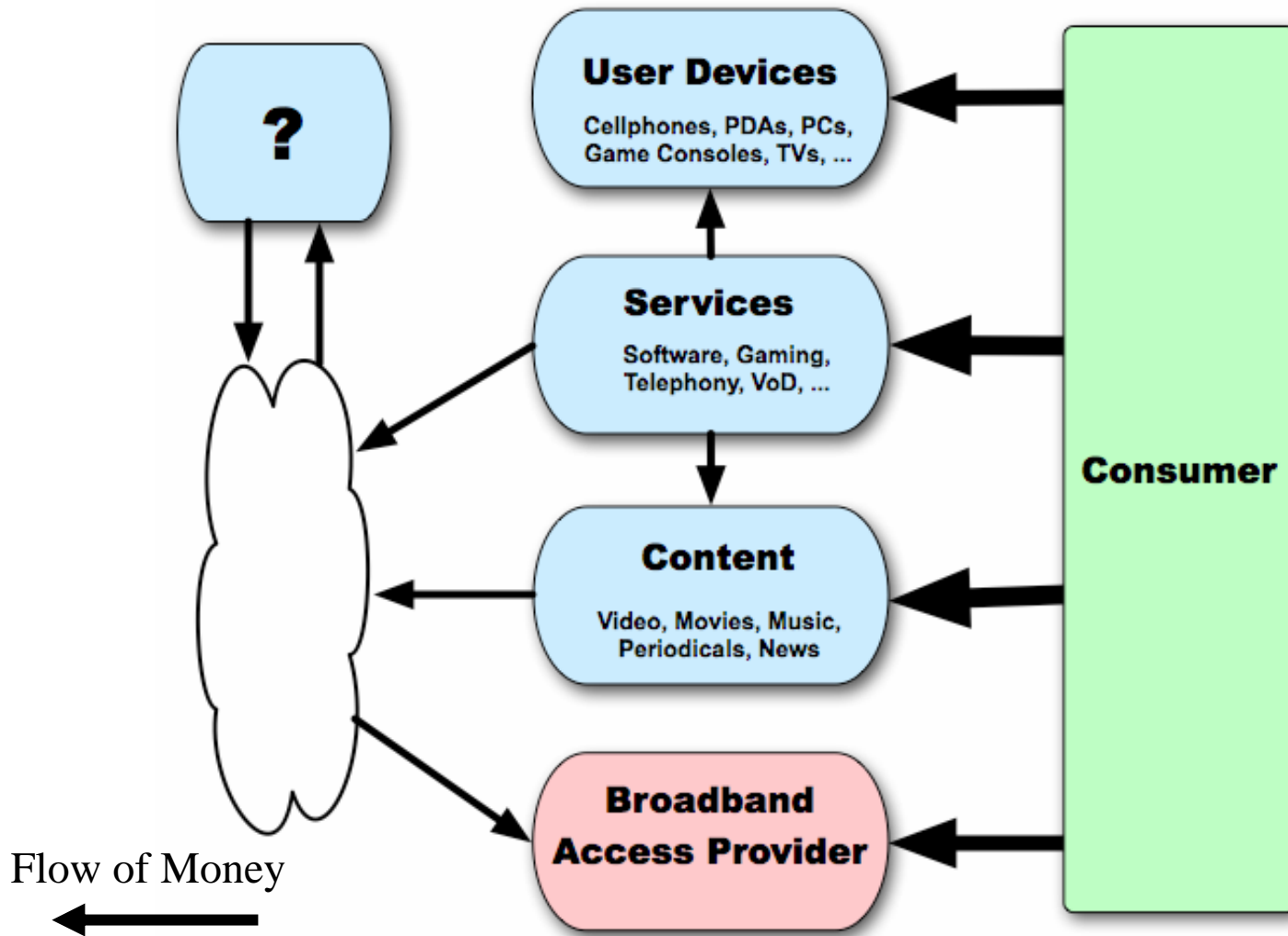
Current Broadband Value Net



Possible Solutions ?

- **Solutions which provide return on network investment without discouraging innovation or new usages**
- **Architectural Changes to the Internet**
 - Adding needed mechanisms
- **New Business Models**
 - How to make use of new mechanisms

Incentivized BB Value Net



Architectural Changes

- **The current Internet has problems**
- **Proposed solutions include:**
 - Support for Interprovider QoS
 - Re-feedback of congestion information
 - Flexible Allocation of Bandwidth among users

Re-Feedback

- **TCP provides “fairness” without any centralized control. Too much !**
- **Re-feedback is a solution being considered by the IETF (proposed by BT)**
- **Allows a sender-pays business model (among many others)**
- **Not a complete solution**

New Business Models

- **Clash between business models, public acceptance, and need for innovation**
- **Searching for new business models**
 - New Pricing Models
 - Personal Broadband

Personal Broadband

- **A vision of broadband access decoupled from location and device**
- **Allows new business models to emerge**
- **Possible mechanisms for realignment of value chain: e.g. broadband access tied to content purchase**