

# Workflow in the Web

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<http://cne.gmu.edu/pjd/wfw.ps>

# Internet 1985

- Government only
- 10,000 computers worldwide
- e-mail, file transfer, remote login
- No web
- No throughput problems
- No viruses
- Mild security problems

# Internet 1996

- 10,000,000 computers; 50,000,000 users
- Open use and markets
- World Wide Web; Mosaic; Netscape
- Congestion problems
- Security problems
- 51% large companies on Internet
- 35% large companies on Web

# Electronic Commerce

- Conducting business -- Internet as medium
- Advertising, catalogs on Web pages
- Search engines
- On-line order forms
- Digital signatures and payments
- Authentication of originators

# The Darker Side ...

- Web an open publication medium
- Security vulnerabilities
- Encryption
- Signatures and certifications of documents
- Viruses
- Privacy concerns
- Frauds

## ... The Darker Side

- Disregard for copyright, licenses, intellectual property
- Spamming
- Gullibility
- Internet cowboys and vigilantes
- Tax policies
- Law enforcement

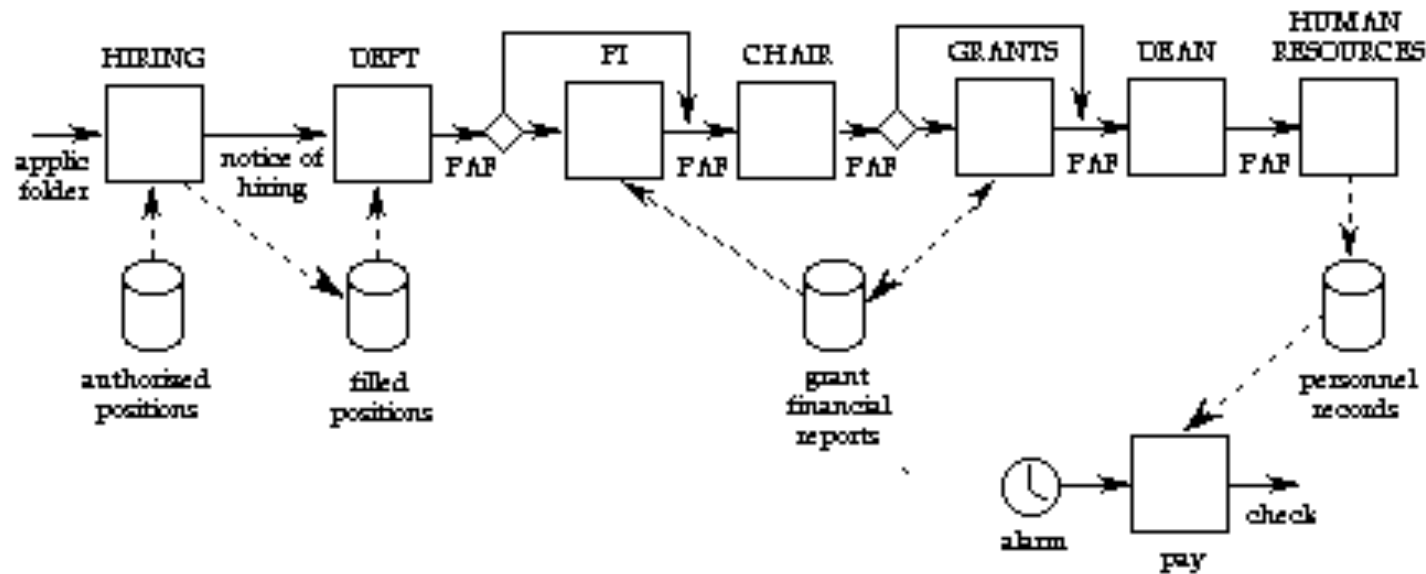
# Info Systems Complexity

- Organizing the business
- Supporting distributed business processes with IT
- Re-engineering existing processes and IS
- IT investment and the service sector productivity trap

# IT View of Marketplace

- Buyers and sellers
- Competition with winners and losers
- Gathering information into databases for later retrieval
- Transmitting information -- advertisements, publications, orders
- Company units and individuals are “functions” that process information

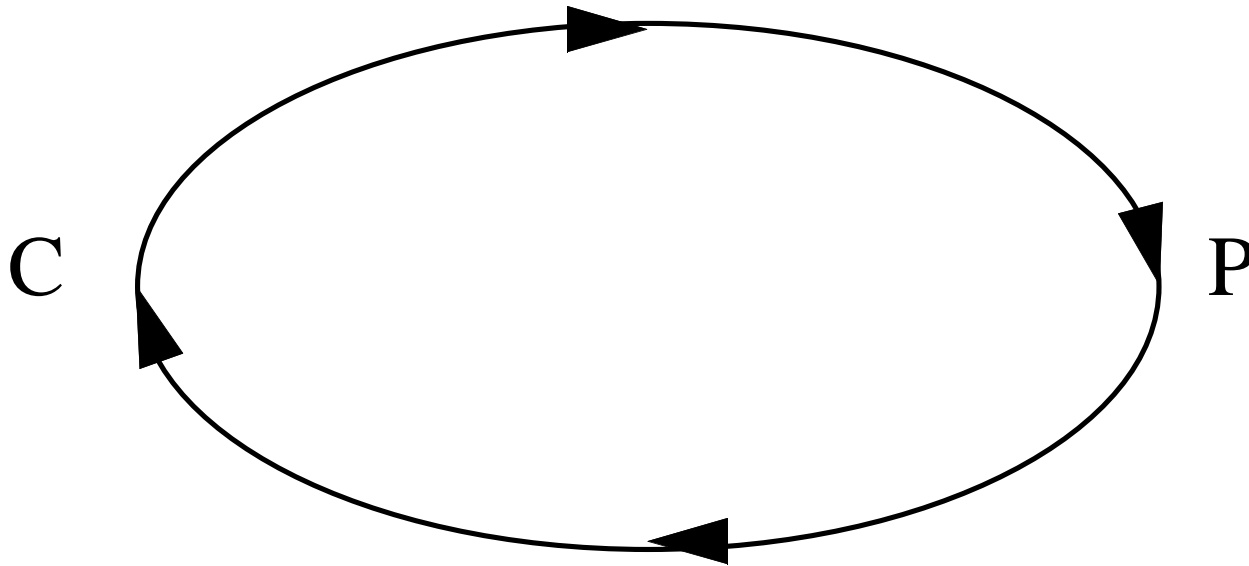
# IT view of a personnel process

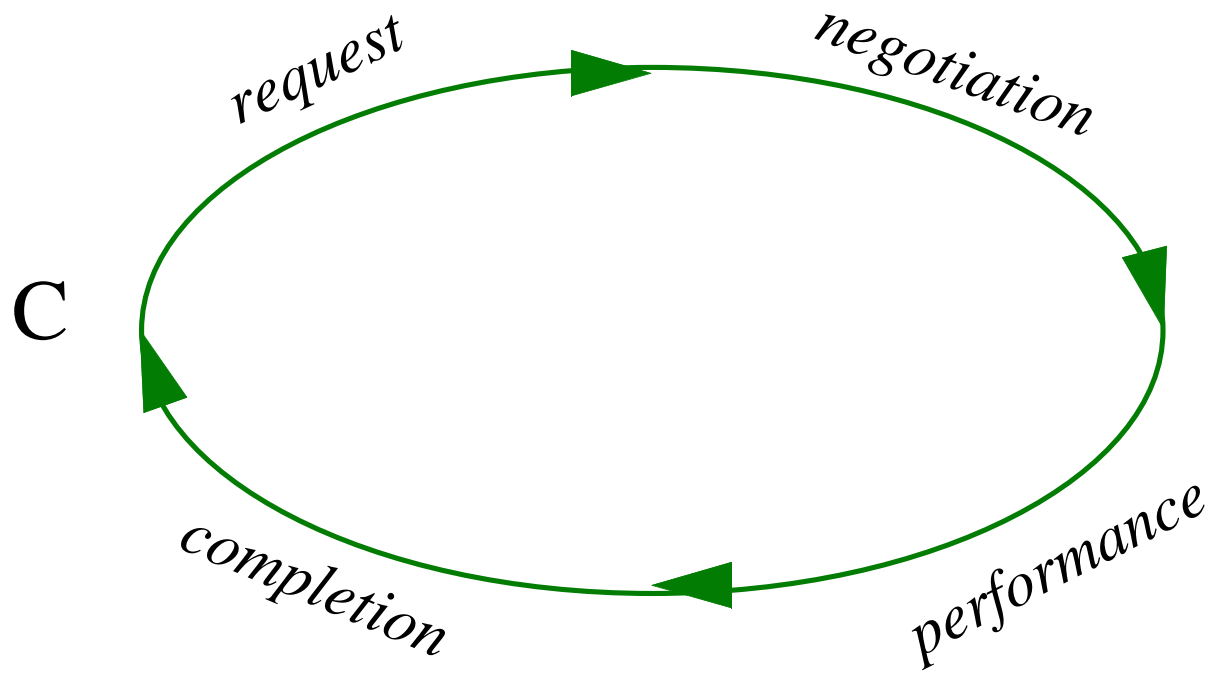


# Coordination View of Marketplace

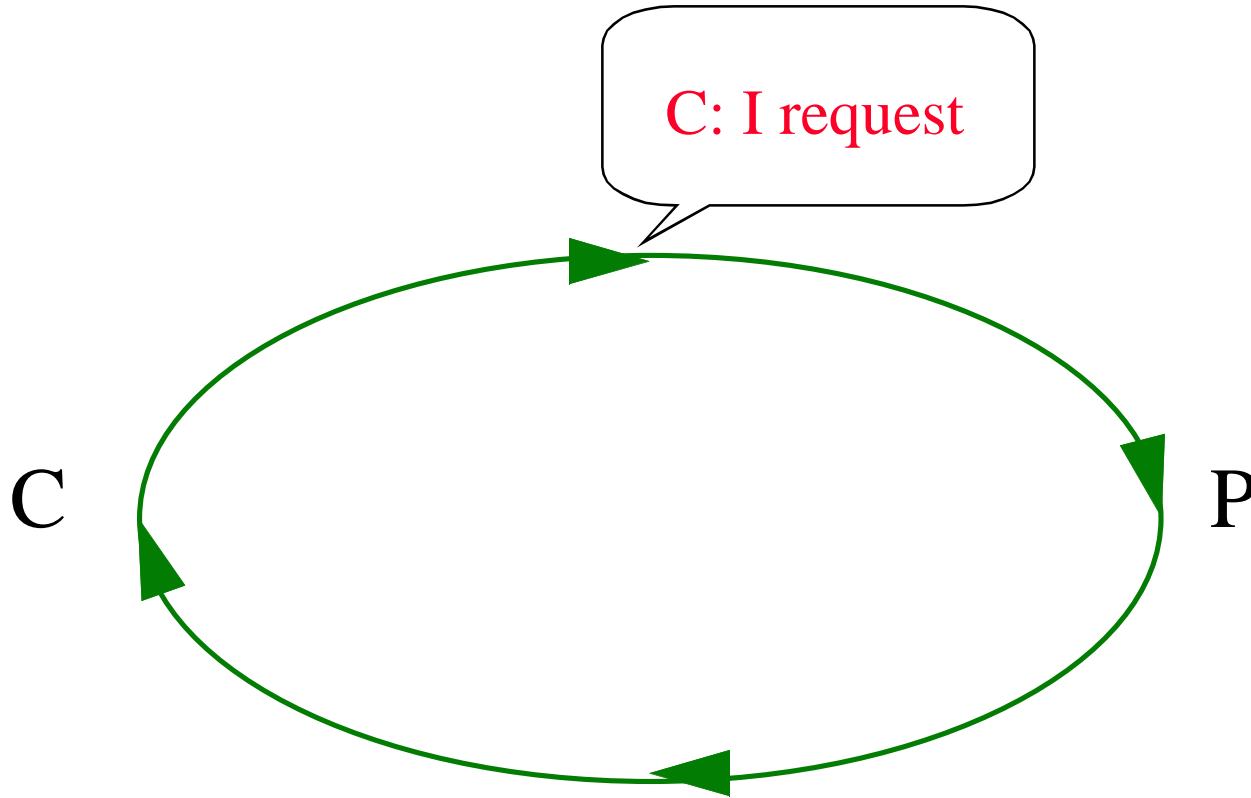
- Buyers and sellers are roles
- Commerce is exchange transactions
- Offers, negotiations, agreements, performance, satisfaction
- IT records and transmits records of commitments
- Authoritative declarations about general rules and particular processes

# Loop diagram of exchange transaction

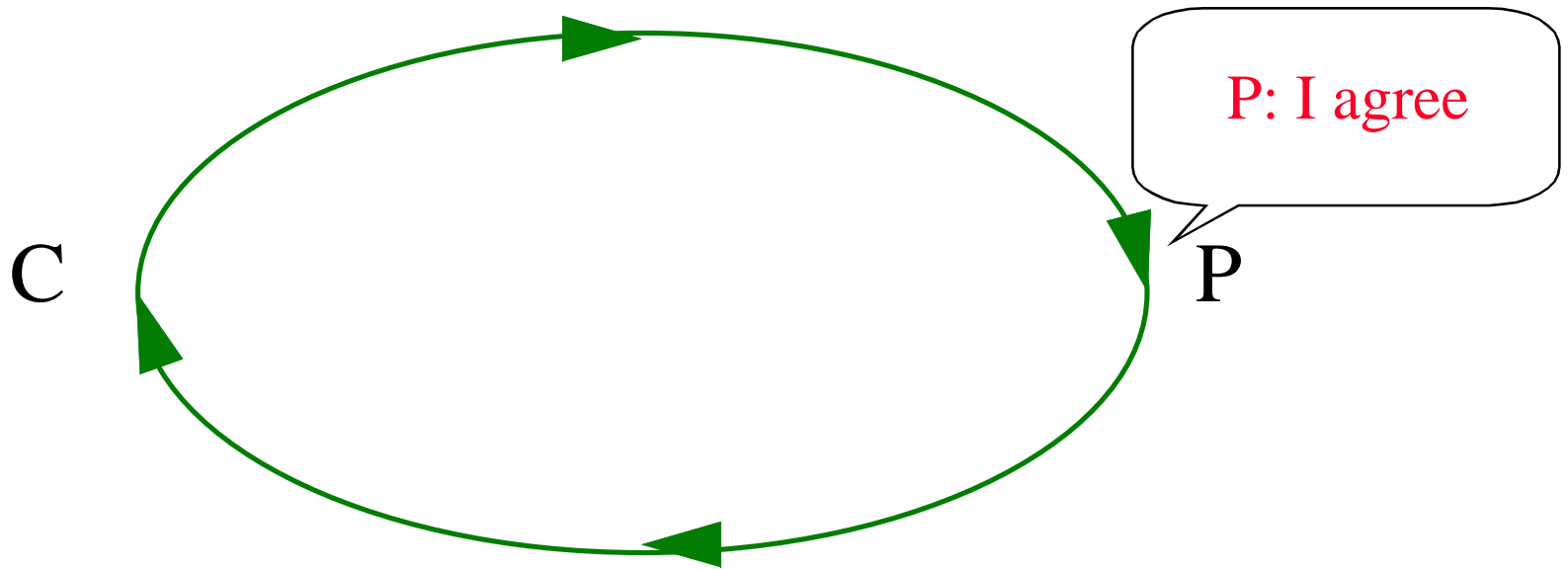




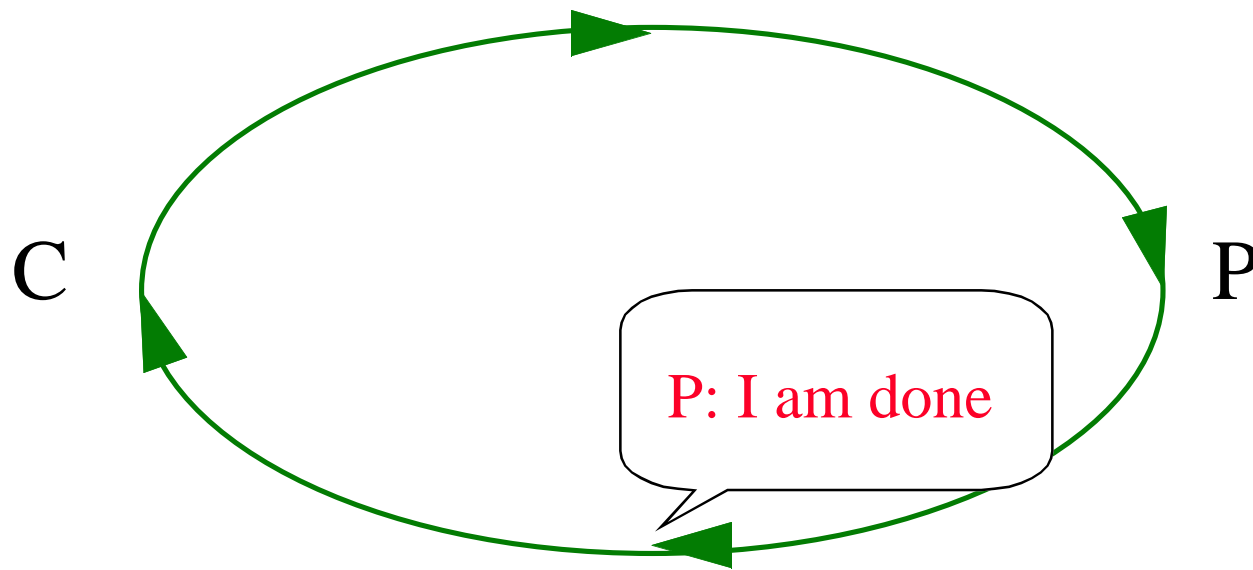
# The Speech Acts



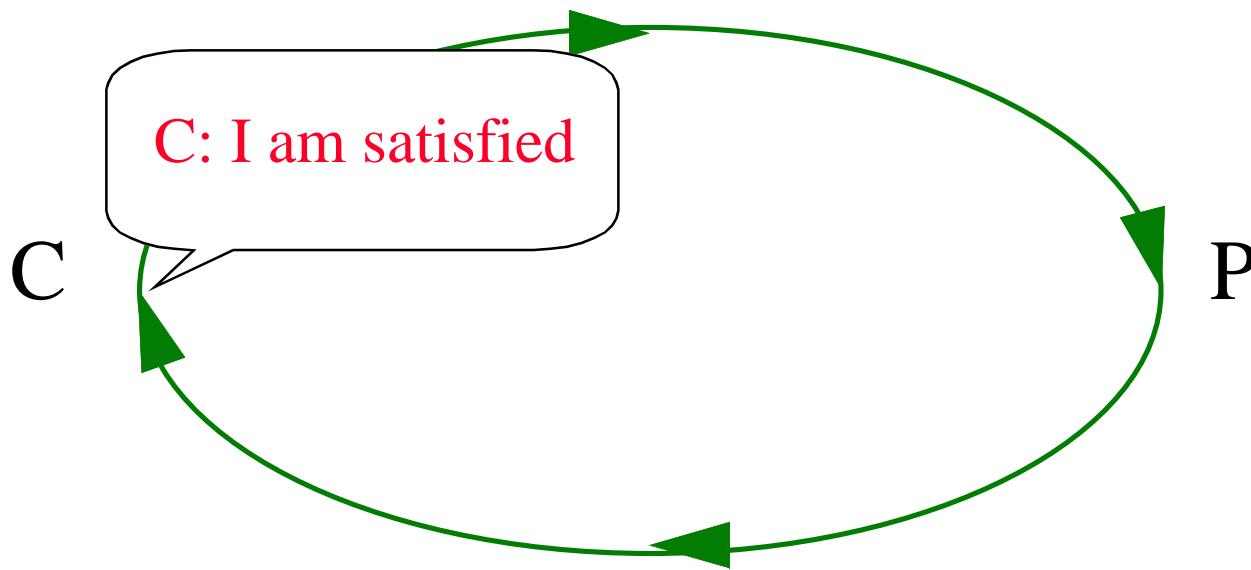
# The Speech Acts



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# The Speech Acts



# Possible Breakdowns

- Communication
- Request
- Negotiation
- Performance
- Completion
- Missing performer
- Missing customer

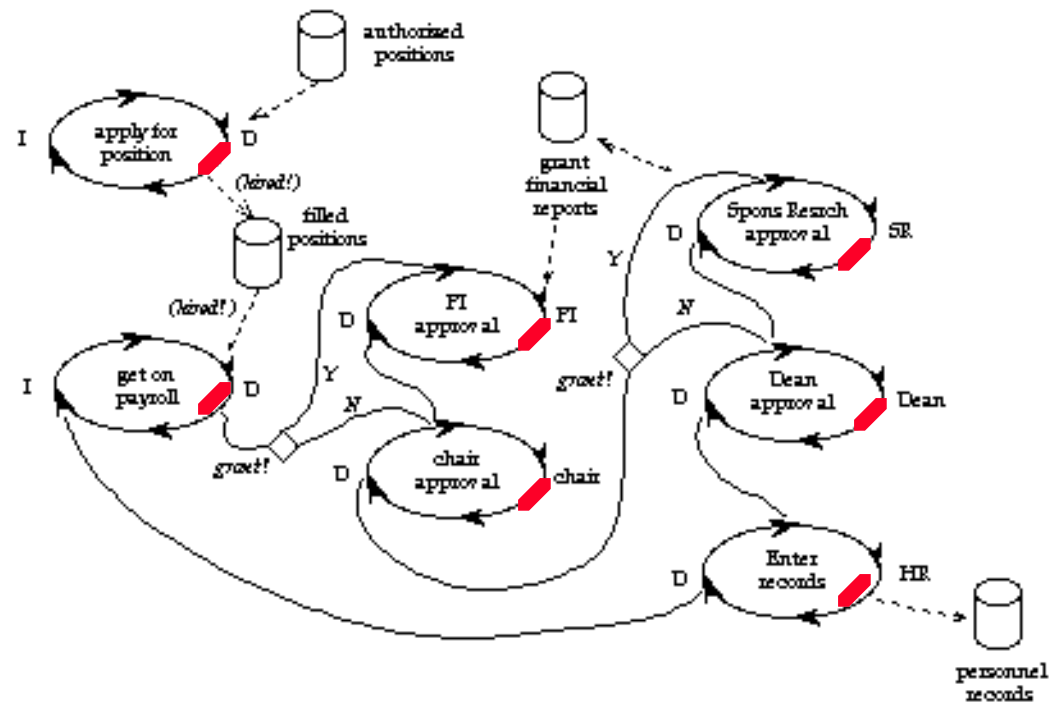
Any of these breakdowns can occur in normal “face-to-face” interactions.

They are more likely when the participants are “distributed”, connected only by the network.

# Business Process

- A network of loops
- Dataflow process is embedded in the performance phases of the loops

# Map of personnel process



# Trust

- Assessment of competence and sincerity
- With trust, transaction fails or never happens
- Symbols such as faces, voices, or handwriting connect us to trust assessment
- Authentication

# Technologies for Commerce

- (1) Authentication
- (2) Coordination
- (3) Payments
- (4) Law-and-order
- (5) Domain specific tools

(need interoperability standards too!)

# Conclusions ...

- 1** Internet is far more interesting as a medium of coordination than as a means of publication
- 2** Technologies for distributed coordination will become the center of action and will eventually deliver increased service sector productivity

# Conclusions ...

- 3 Distributed databases are becoming more important than centralized
- 4 Computation is less algorithms acting on data structures and more hoards of independent processes navigating distributed resources
- 5 The **Internet** is the computer!

# Appendix: A Web Tour

Illustrating some of the previous points

# Some Web Sites of Interest

- Examples of merchants
  - [www.waiter.com](http://www.waiter.com) (restaurants in Bay Area)
  - [www.virtualvin.com](http://www.virtualvin.com) (fine wines)
  - [www.cybercash.com](http://www.cybercash.com) (payments)
  - [www.elpress.com](http://www.elpress.com) (creating web presence)

# Some Web Sites of Interest

- Workflow
  - [www.actiontech.com](http://www.actiontech.com) (Metro workflow system)
  - [www.com/WARIA](http://www.com/WARIA) (Workflow Association)
  - [www.cc.gatech.edu/gvu/edtech/CaMILE.html](http://www.cc.gatech.edu/gvu/edtech/CaMILE.html) (Group coordination system)

# Some Web Sites of Interest

- Schools with award-winning sites
  - [oakview.fcps.edu](http://oakview.fcps.edu) (Oak View, VA)
  - [www.rockets.org](http://www.rockets.org) (Andrew Robinson, FL)
- Hyperlearning
  - [cne.gmu.edu](http://cne.gmu.edu) (CNE modules)
  - [www.shodor.org](http://www.shodor.org) (Authentic science sims)

# Some Web Sites of Interest

- Commercial Educational
  - [www.uvc.com](http://www.uvc.com) (video and web tutorials)
  - [www.lrnntree.com](http://www.lrnntree.com) (IT training)
- Miscellaneous
  - [altavista.digital.com](http://altavista.digital.com) (Search Engine)
  - [www.knowledgeway.org](http://www.knowledgeway.org) (Regional Ass'n)
  - [www.bionomics.org](http://www.bionomics.org) (Think tank)
  - [www.unitedmedia.com/comics/dilbert](http://www.unitedmedia.com/comics/dilbert)

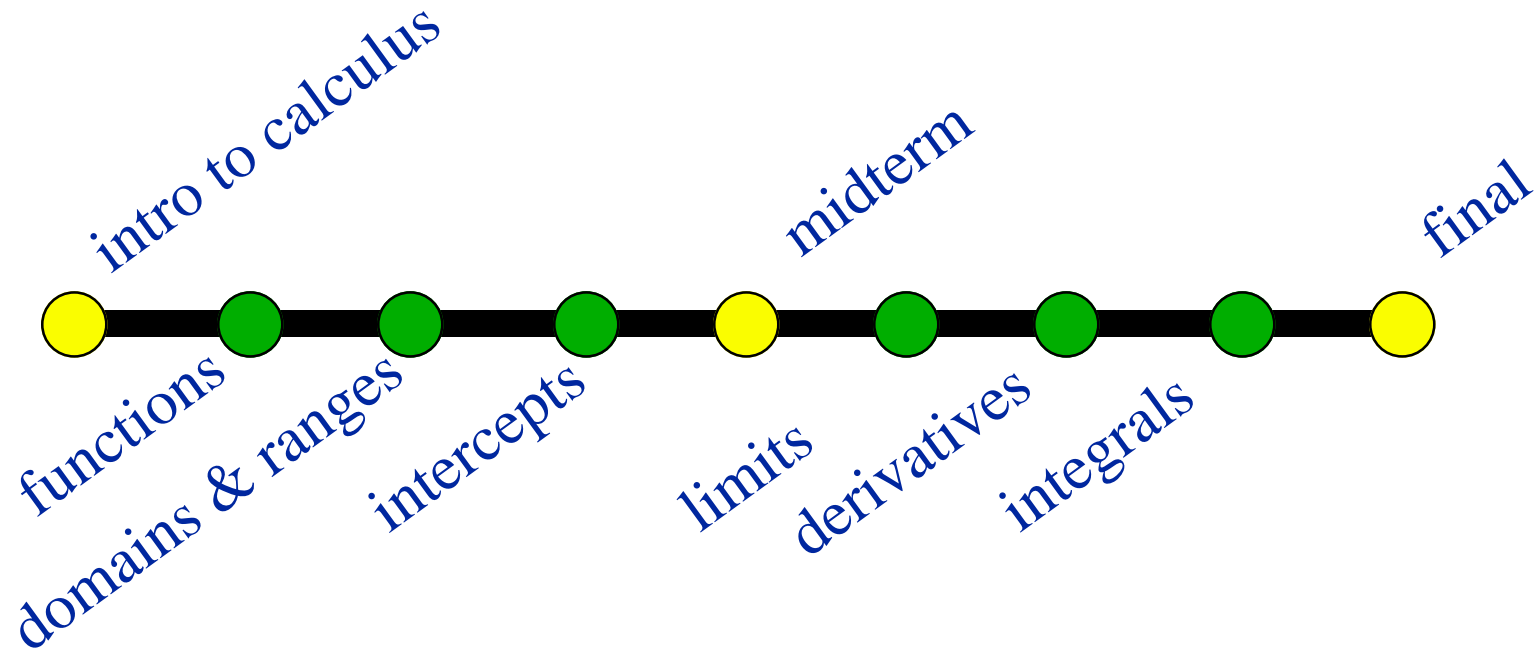
Appendix:  
**HYPERLEARNING**

# HYPERLEARNING

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# Linear Learning

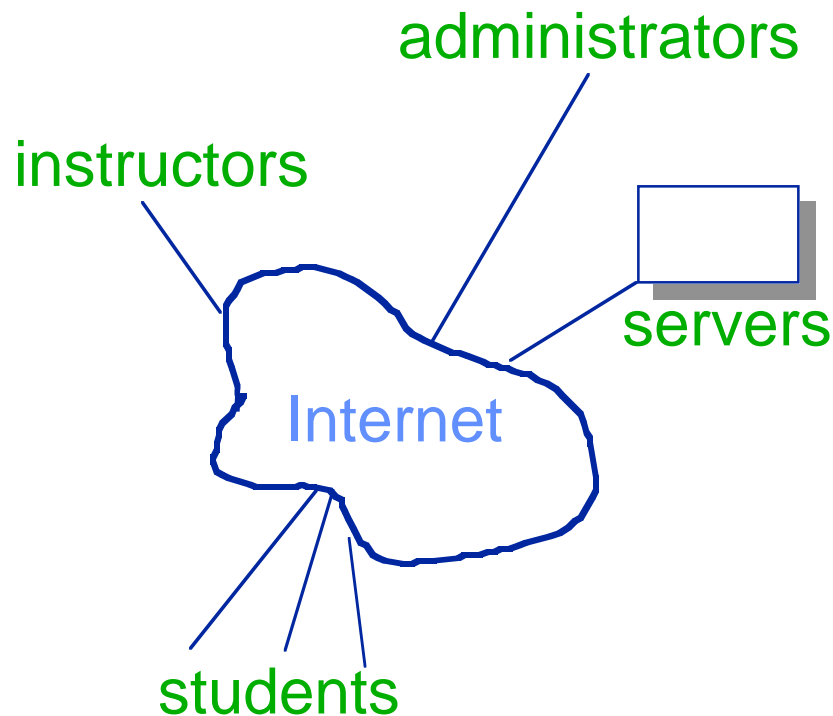
(world of classroom)



fixed time, fixed order, variable grade

# Hyperlearning

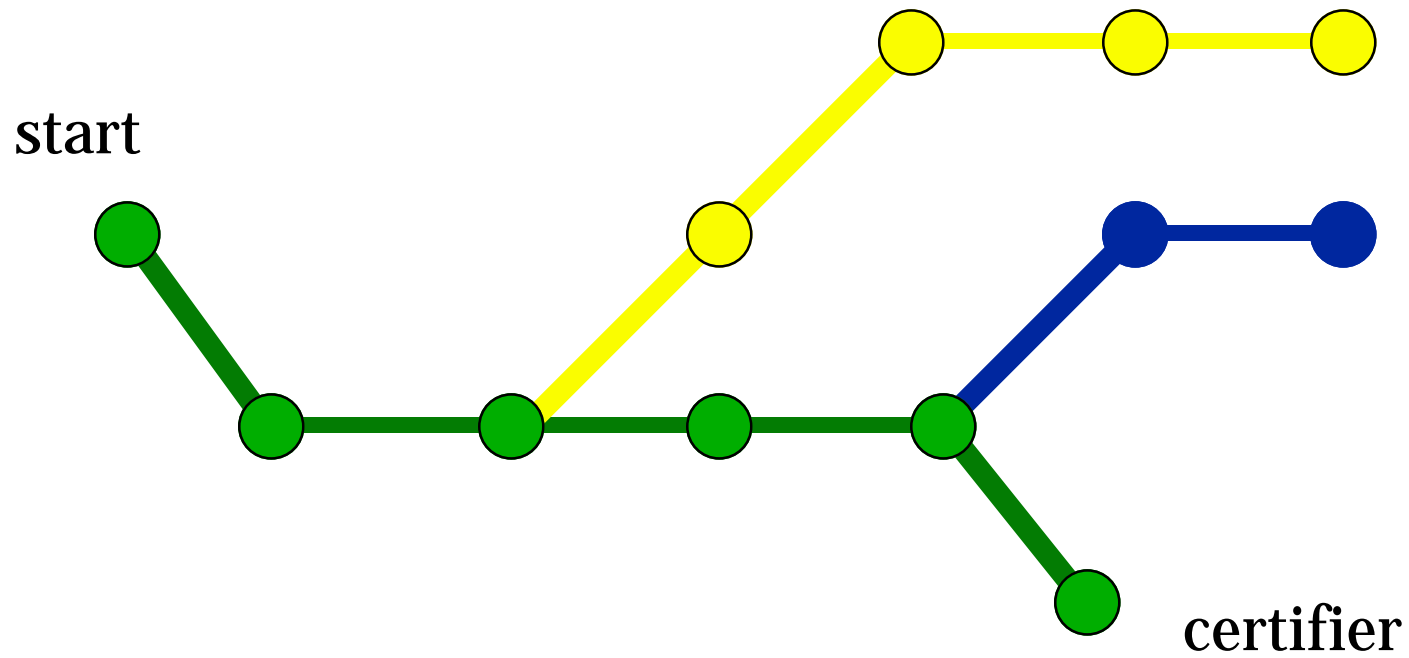
(world of networks)



- n Self-paced
- n Certification of knowledge & skills
- n Individualized time to certification
- n Ubiquitous self-assessment
- n Coaching sessions
- n Lower transportation costs
- n Lower operating costs/student
- n Higher success rates
- n Physical resource removed as bottlenecks

# Hyperlearning

(world of networks)



variable time, variable order, fixed grade

# On-going and future work

- n Distributed Assessment System
- n Subway Map Editor
- n Module Publisher
- n Measuring the efficiency and effectiveness of the approach

# Status & Challenges

	Now	Future
self-assessment certification	yes limited	yes full & secure
multiple choice true/false matching table short answer	yes yes yes yes	yes yes yes yes
monitored interaction immersion in simulation feedback from local questions feedback from concepts network	no no yes no	yes yes yes yes
scalable distributed client/server web-based	hundreds central yes	thousands distributed yes

