Electronic Commerce Technologies

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Module 1: Introduction

- Scope
- Grading
- Policies
  - Especially, academic integrity
Scope of this Course

- Directed at computer science students
- Emphasizes concepts and theory
- Requires a moderate amount of work
- Fairly easy if you don’t let things slip

TRADITIONAL IT : ONE PERSPECTIVE
E-COMMERCE : MANY PERSPECTIVES
Electronic Business

- B2C: retail, finance
- B2B: supply chains (more generally, supply networks)
- Different perspectives
  - Traditionally: merchant, customer, dealmaker
  - Trends: collaboration among various parties; virtual enterprises; coalition formation

Main technical consequence: interacting across enterprise boundaries or administrative domains

1. Many enterprises are relevant
2. Logically considered independent entities
Properties of Business Environments

- Traditional computer science deals with **closed environments**
- Business environments are **open**
  - **Autonomy**: independent action (how will the other party act?)
  - **Heterogeneity**: independent design (how will the other party represent information?)
  - **Dynamism**: independent configuration (which other party is it?)
    - Usually, also large scale
- Need **flexible approaches and arms-length relationships**

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Autonomy

Independence of business partners

- **Sociopolitical** or economic reasons
  - Ownership of resources by partners
  - Control, especially of access privileges
  - Payments

- **Technical reasons**: opacity with respect to key features, e.g., precommit
  - Model components as autonomous to simplify interfaces "assume nothing"
  - Model components as autonomous to accommodate underlying exceptions
Would like coordination
Heterogeneity

Independence of component designers and system architects

- Historical reasons
- Sociopolitical reasons
  - Differences in local needs
  - Difficulty of achieving agreement
- Technical reasons: difficulty in achieving homogeneity
  - Conceptual problems: cannot easily agree
  - Fragility: a slight change can mess it up
Dynamism

Independence of system configurers and administrators

- Sociopolitical reasons
  - Ownership of resources
  - Changing user preferences or economic considerations
- Technical reasons: difficulty of maintaining configurations by hand
  - Same reasons as for network administration
  - Future-proofing your system
Coherence

Make sense fit well with each other

Think of this as an alternative to consistency

- There may be no state (of the various databases) that can be considered consistent
  - Maintaining consistency of multiple databases is difficult
  - Unexpected real-world events can knock databases out of sync with reality

- What matters is
  - Are organizational relationships preserved?
  - Are processes followed?
  - Are appropriate business rules applied?