self-updating software
progress report
sept 98 – dec 99

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overview

today’s problem: administering a PC
  · installing is time-consuming & error-prone
  · interdependences make configuration fragile
  · hard to update or remove applications

tomorrow’s problem: pervasive updating
  · on entry to airport, PDA downloads flight reminder code
  · car downloads driving regimen from roadsingh
  · handheld controller connects to devices in room

3-pronged approach
  · archaeology
    examine dependences in existing complex systems
  · infrastructure
    design & build infrastructure for self-updating
  · applications
    demonstrate & evaluate results in real applications
progress: candidate architecture

key elements
• device platforms
  handle updates, shielding application updating mechanism
  maintain database about local configuration
• change databases
  hold new objects (code & data), specs, dependencies, etc
• transport
  network, may include caching
plans

archaeology
  · examine dependencies in Linux, Windows
  · use monitoring, logs, scripts, etc
  · develop dependency model
    captures common kinds of dependence

infrastructure
  · elaboration of architecture
  · implementation in Thor

demonstrations
  · self-updating in Thor
  · updatable PC telephone, using TAPI
  · stock tracker: updating using agents in Java