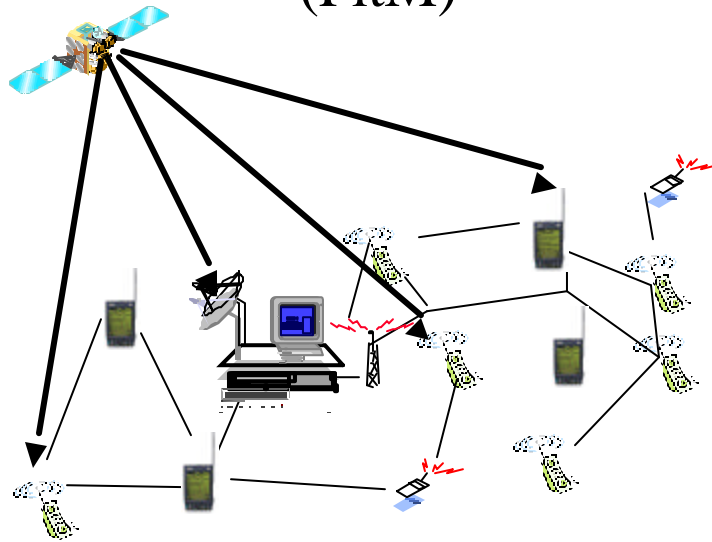


Overview of xC2

Nikunj Mehta

Programming-in-the-Many (PitM)



9/4/01

2

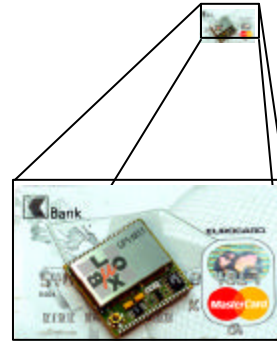
Resource Constraints

- This has been your computer



9/4/01

- This will become your computer

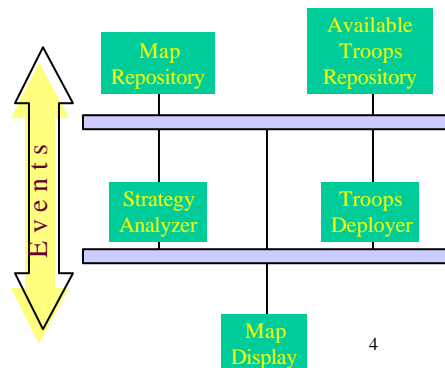


3

How Do You Build Software For Your New Toys?

It's all about the architecture!

- Software architecture is a system's blueprint
- Event-based interaction among autonomous **components**, mediated by active **connectors**



9/4/01

4

Top 5 Reasons Why You Need to Know xC2?

- xC2 is an architecture framework in Java
- xC2 is designed for distributed systems
- xC2 is optimized for resource constrained applications
- xC2 is the bread and butter for this class
- xC2 is my pet framework

9/4/01

5

Framework Objectives

- Platform Independence
- Distribution
- Message based communication
- Dynamism
- Light weight
- Observability
- Extensibility
- Traceability

9/4/01

6

Framework Genesis

- C2 architecture style
 - Highly distributed, dynamic and evolving systems
 - Components, connectors and the topological rules of interaction
- Framework development
 - C++, Ada, Java, Embedded Visual C++
 - *C2, oC2, eC2, xC2*
- Isomorphic frameworks
 - Different frameworks look the same from outside

9/4/01

7

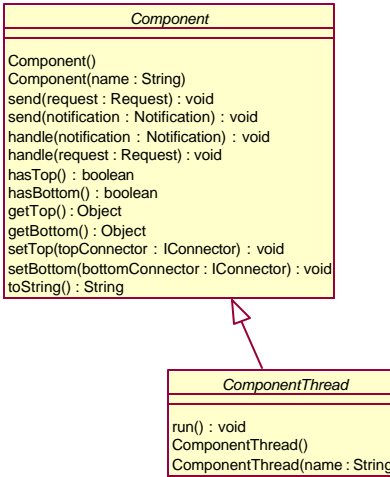
Important Concepts

- Component
 - Maintain state
 - Perform application-specific processing
- Connector
 - Mediate interaction
 - Control transmission and distribution of messages
- Architecture
 - Weld and *unweld* elements
 - Compose sub architectures

9/4/01

8

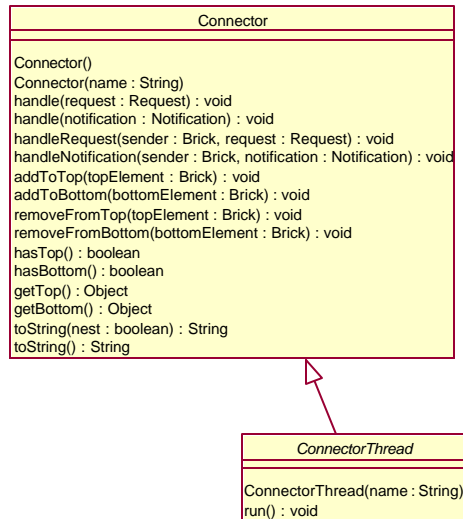
Component API in xC2



9/4/01

9

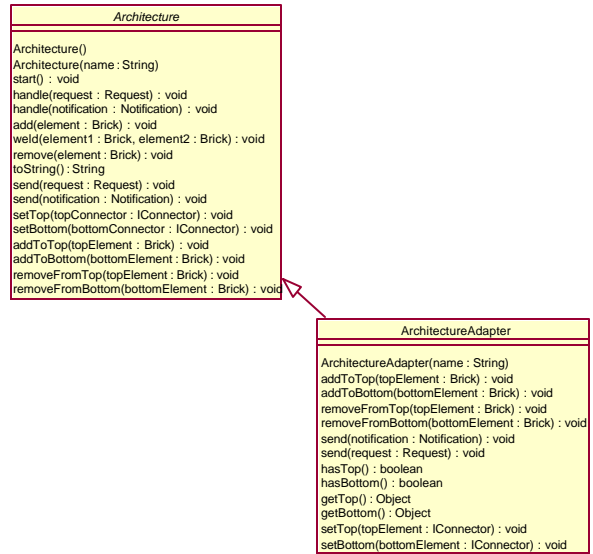
Connector API in xC2



9/4/01

10

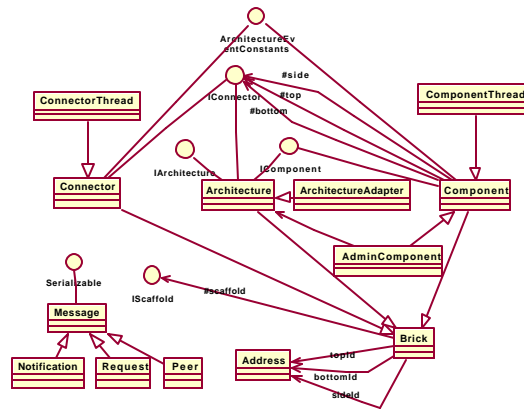
Architecture API in xC2



9/4/01

11

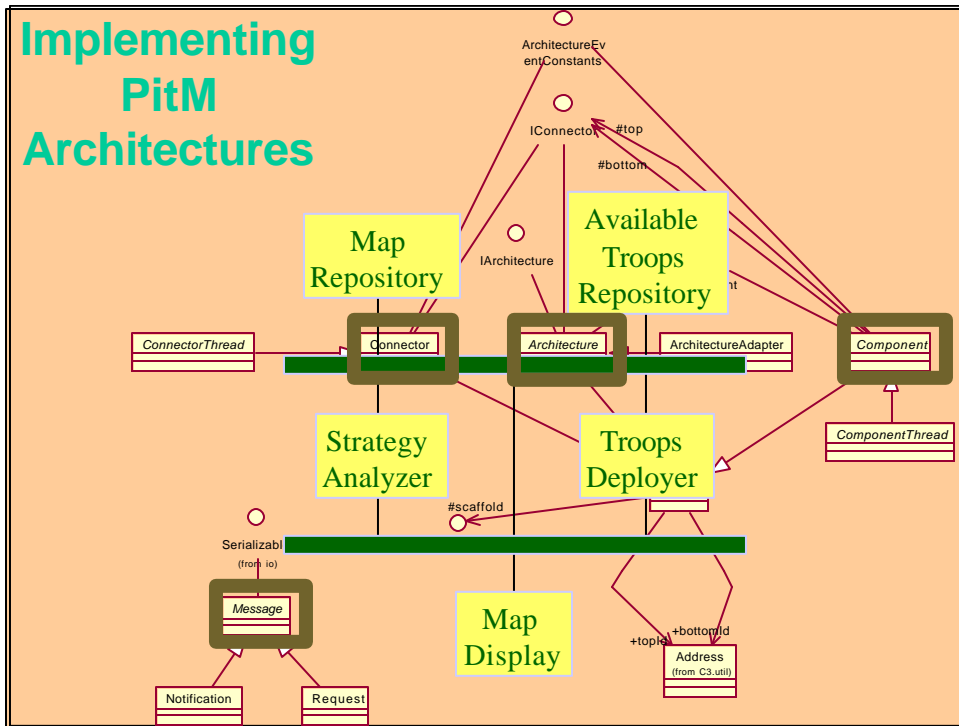
xC2 Framework Class Diagram



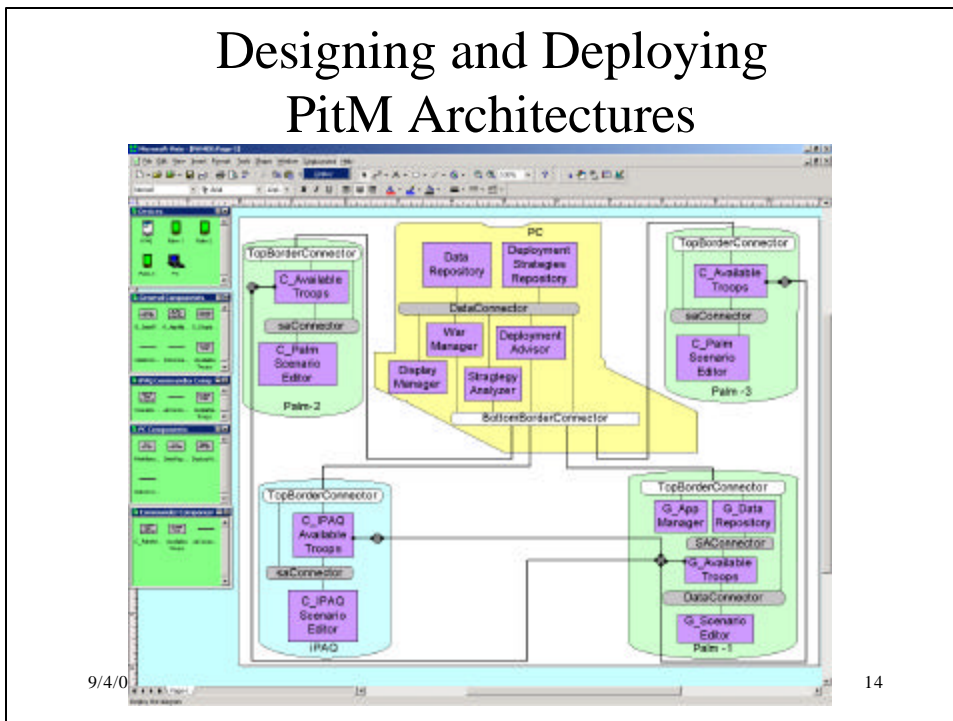
9/4/01

12

Implementing PitM Architectures



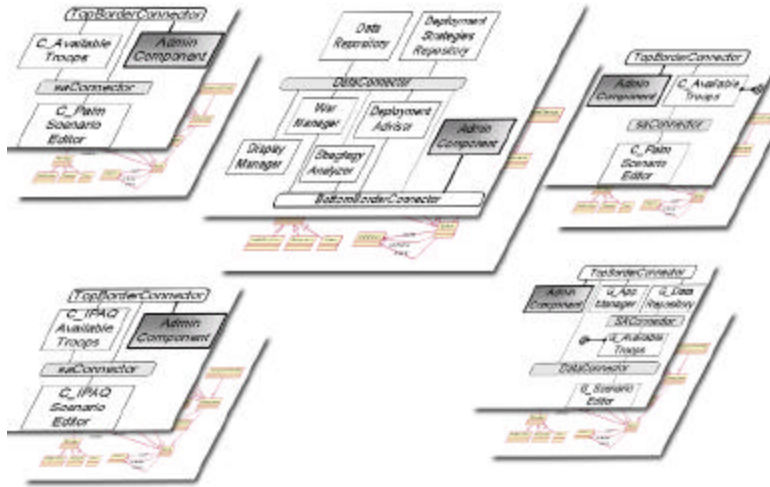
Designing and Deploying PitM Architectures



9/4/0

14

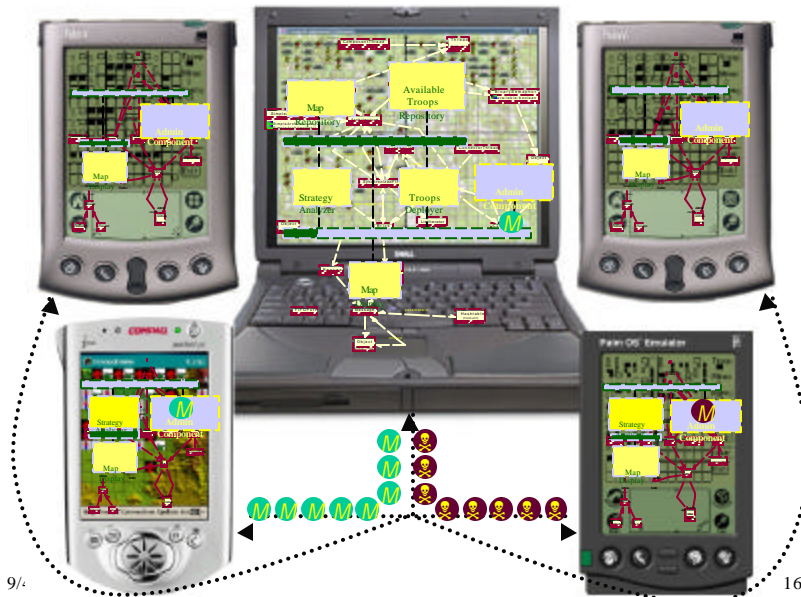
Layering the Application



9

15

PitM in Action



9/

16