Connection Closures

- Adding Application Specific Control to ATM Connections -

Sean Rooney, April 18, 1997

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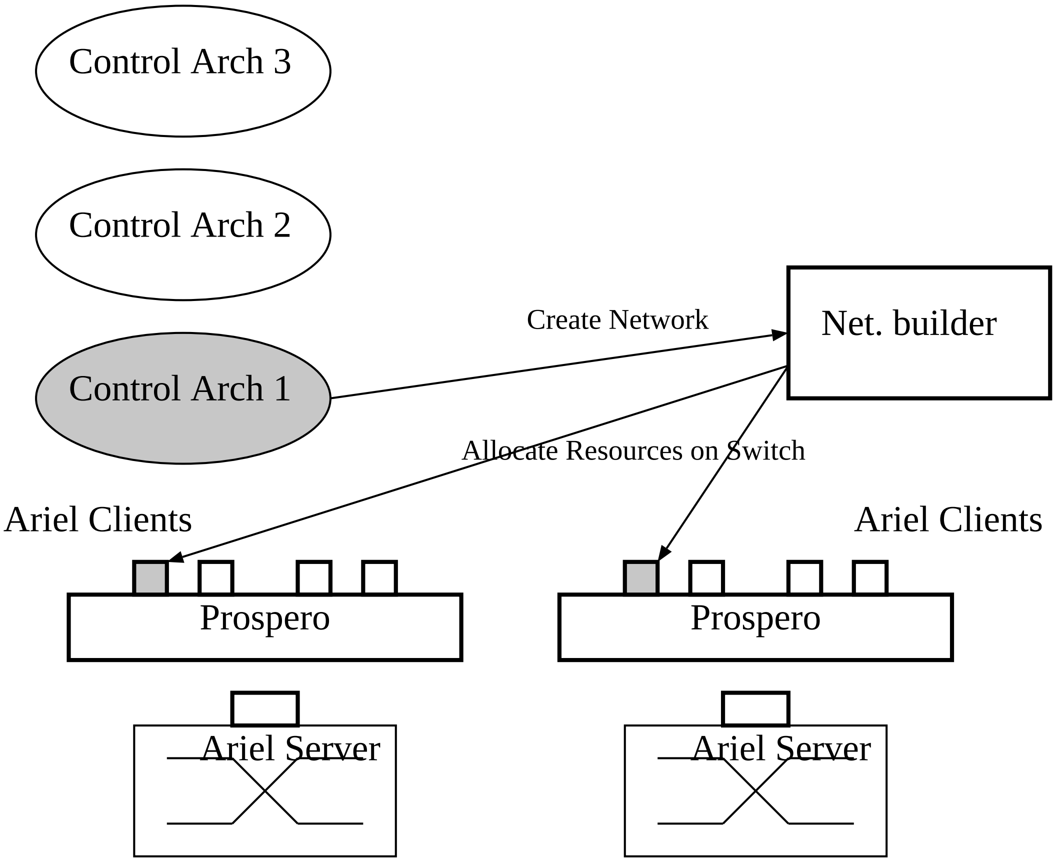
Context

Open ATM Control at Cambridge



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Problem

Exploitation of application knowledge

- very flexible resource control;
- applications could use this;
- limited by APIs.

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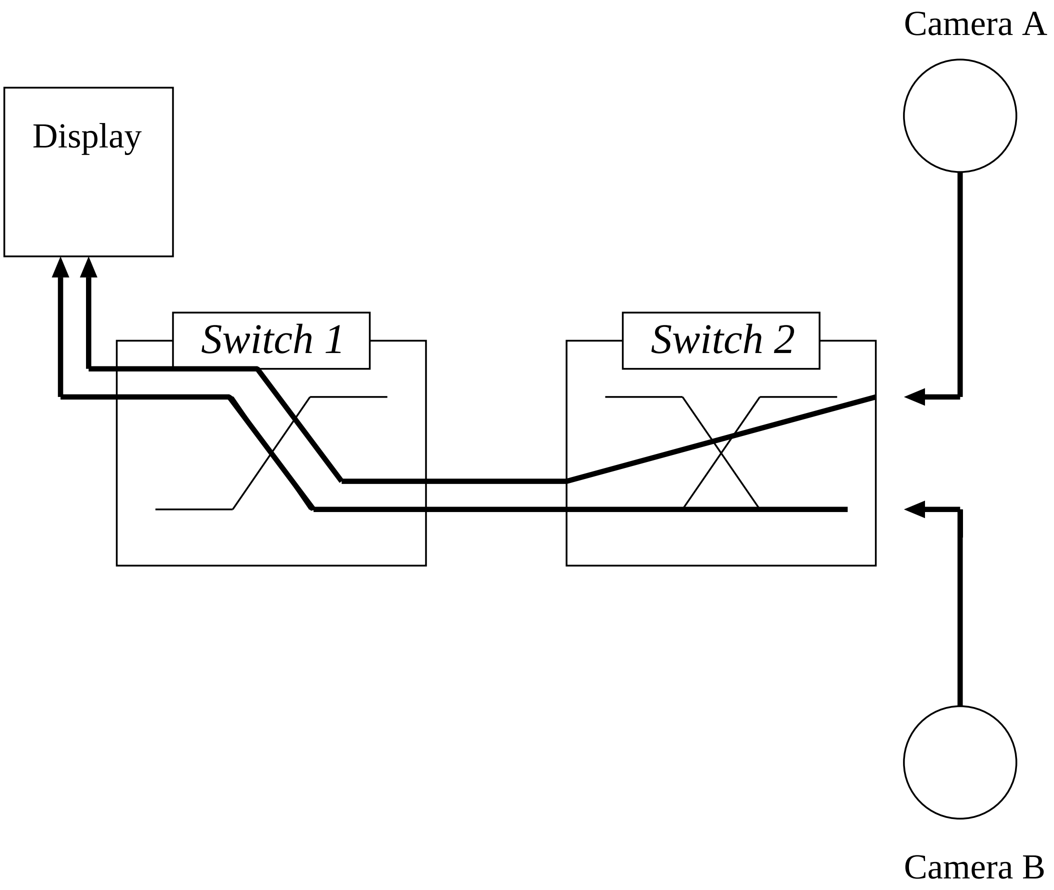
Example 1

Security Guard



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Connection Closures

Introduction

- connection = set of distributed network resources;
- ATM connections ’belong’ to applications;
- control policy delegated to the Control Arch.
- control policy can be application specific;
- *Connection Closure* = *Resources* + *Control policy*.

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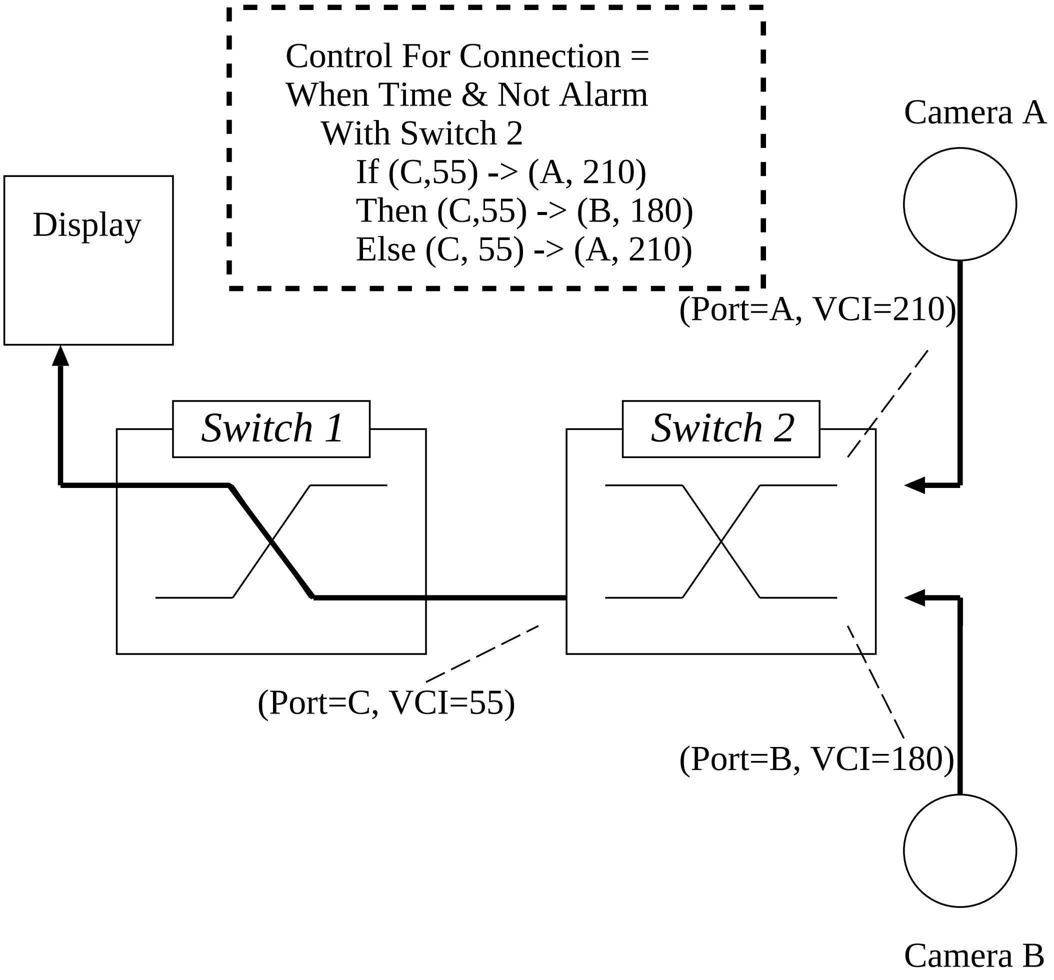
Example 1 (Revisited)

Security Guard



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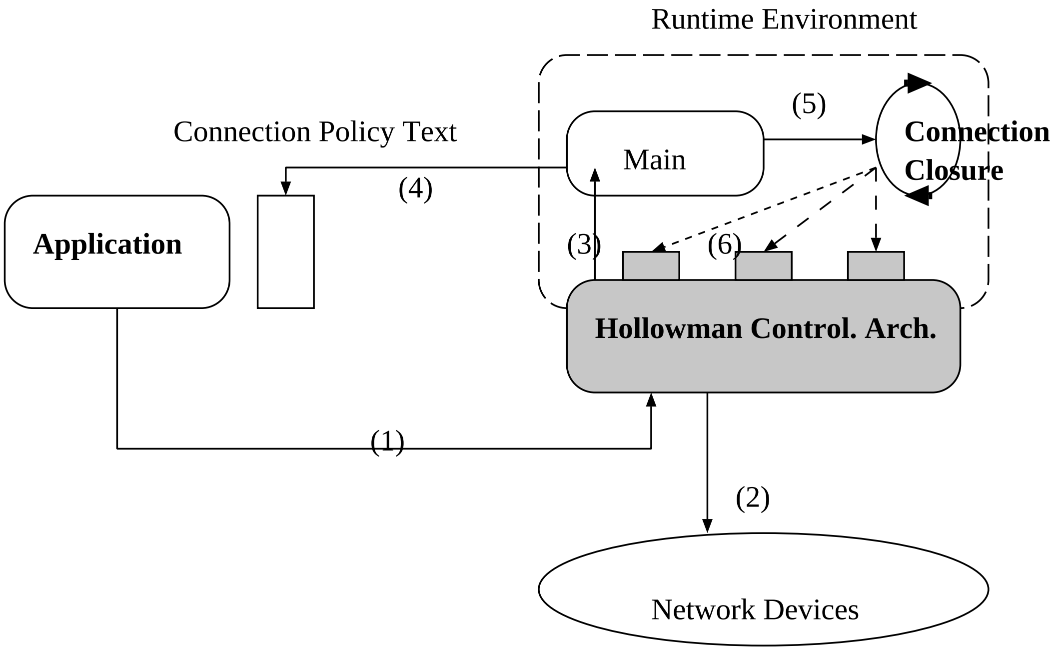
Hollowman Implementation



(1) Call Hollowman request closure creation
(2) Reserve resources for connection(s) on devices
(3) upcall into run time environment
(4) read and load connection policy
(5) Start-up Connection closure
(6) Link to Hollowman interface and do control

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Closure / Hollowman Interface

- Registration
- Resource Allocation/Liberation
- Virtual Channel Management
- Routing
- Host Notification
- Communication

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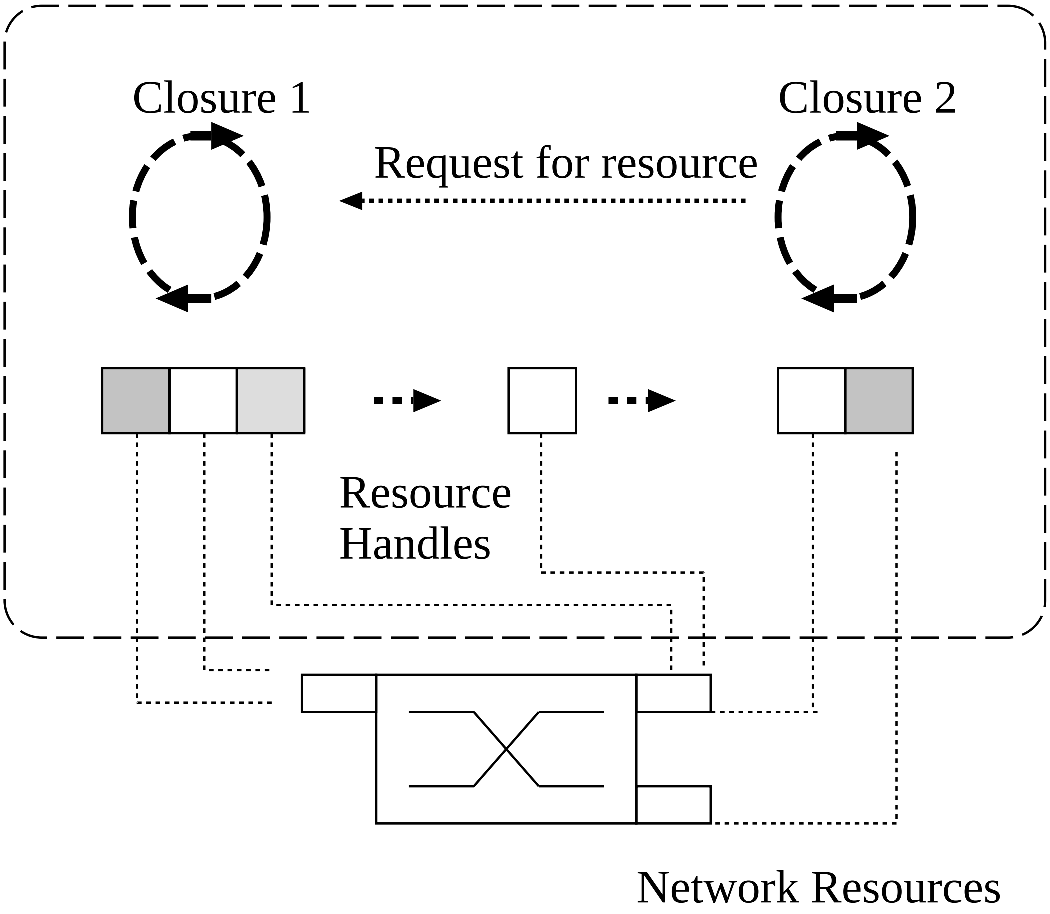
"Resource Market Place"



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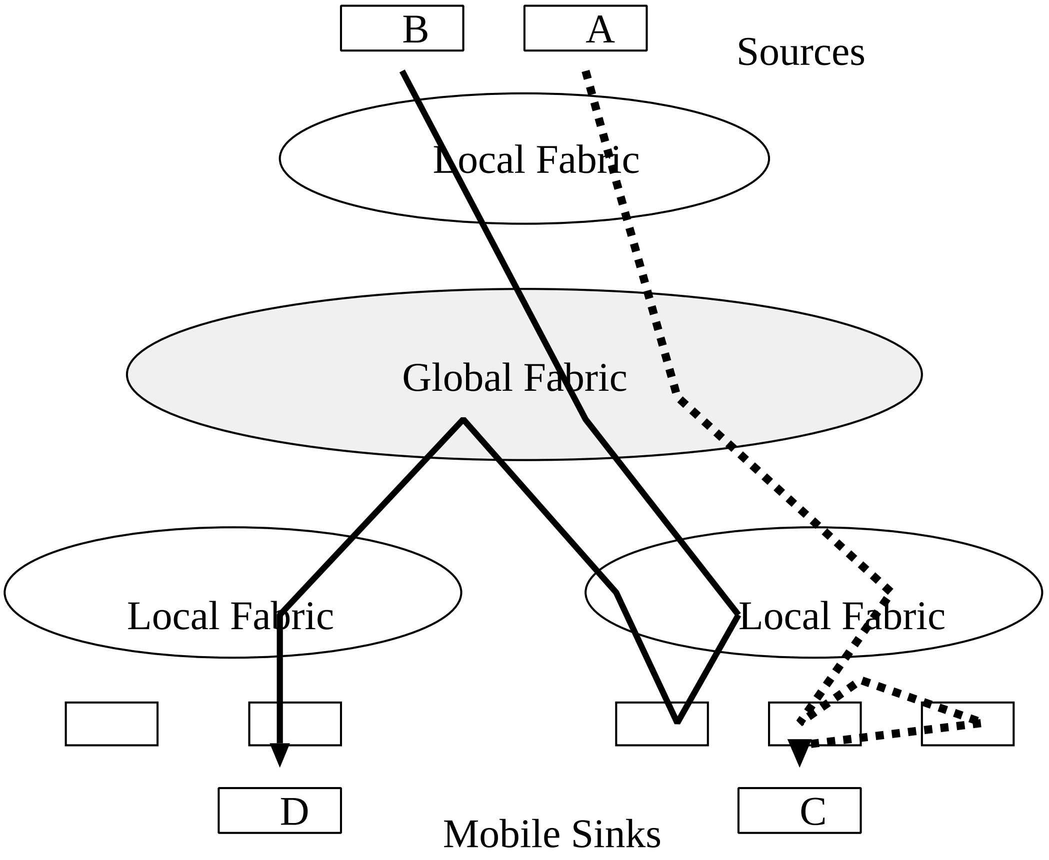
Example 2



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Some Related Work

- Y. Yemini and S. da Silva, “ Towards Programmable Networks”, in IFIP/IEEE International Workshop on Distributed Systems: OPerations and Management Oct 96
- D. Tennenhouse and D. Wetheral, “Towards an Active Network Arhitecture”, in ACM SIGCOMM CCR, Volume 26, Number 2, Apr 96
- K. van der Merwe and I. Leslie, “Service Specific Control Architectures for ATM”, work in progress

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Summary

- Connection closure = resources + control policy;
- Policy can be application specific;
- Allows use of application specific knowledge.

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