
CORBA **TMN** **Alarm**
Surveillance System

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Contents

- Motivation & Goal
- Related Work
- CORBA TMN
- Alarm Surveillance System
- Implementation
- Conclusion & Future Work



Motivation

- 가
 - SNMP / CMIP
 - ,
 - ,
- TMN CORBA
 - CORBA/CMIP, CORBA/SNMP
 - CORBA



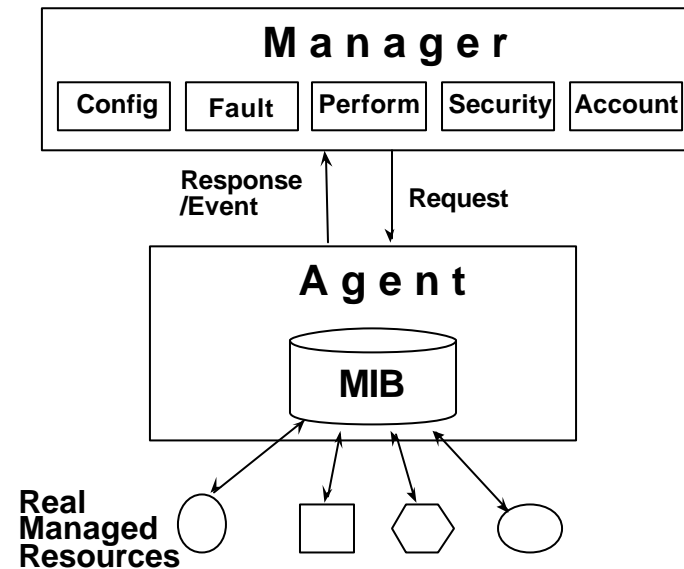
Goal

- -
 -
- TMN Alarm Surveillance System
 -
 - SNMP Agent



Related Work(1) -Network Management

- - , , ,
 - ,
- Internet (SNMP)
 -
 - ,
- OSI (CMIP)
 -
 - SNMP
 - ,



Related Work (2) - TMN

- Telecommunications Management Network (TMN)

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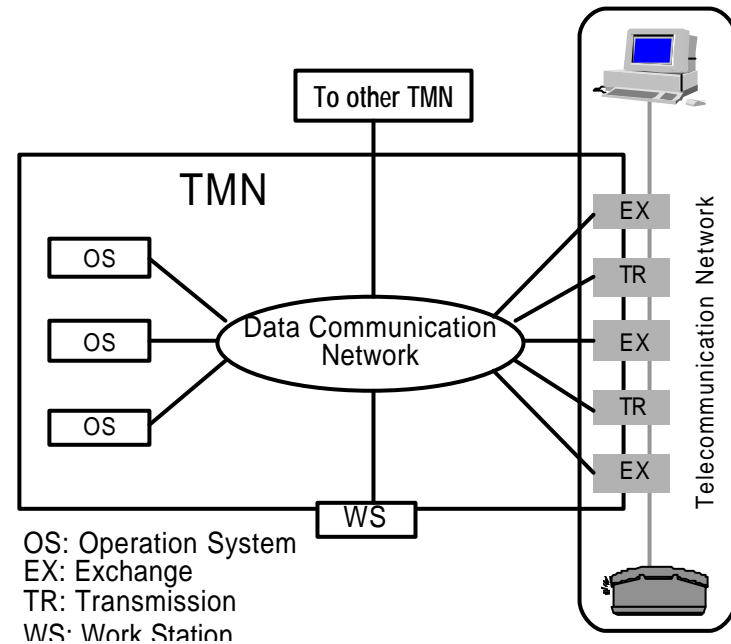
– TMN

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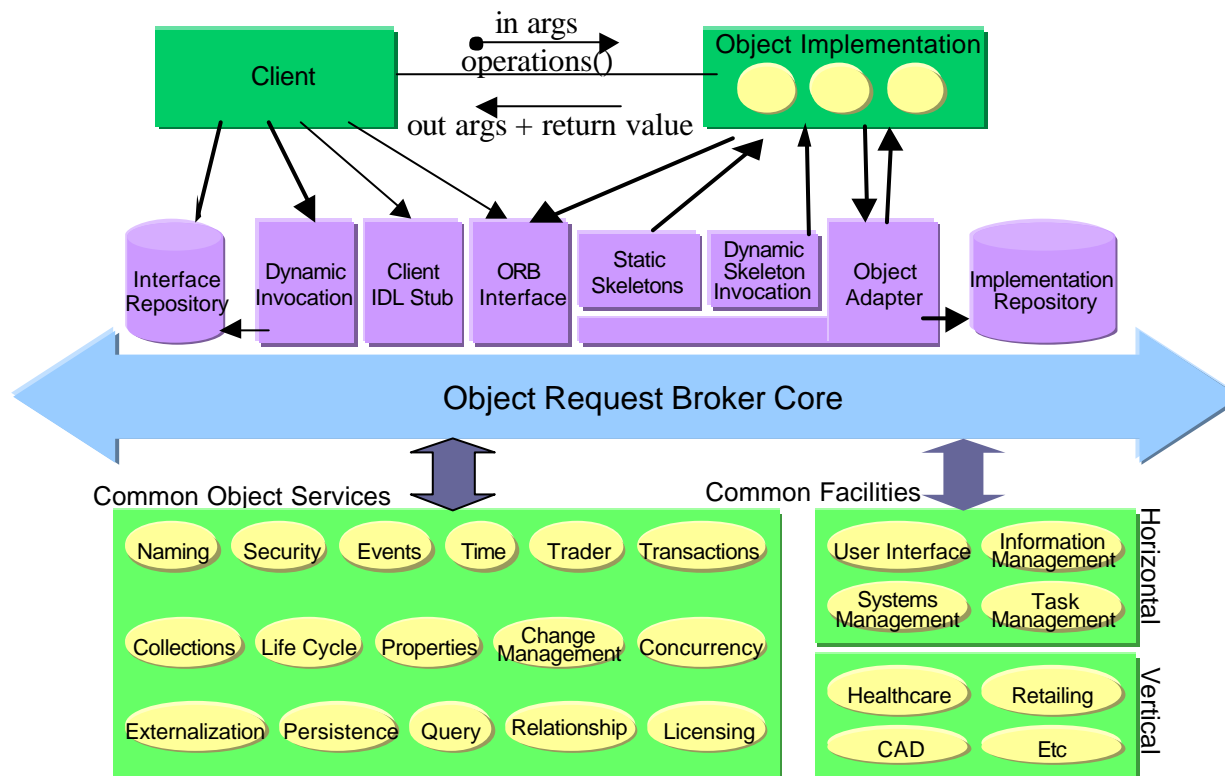
– TMN

- , ,



Related Work (3) - CORBA

- Common Object Request Broker Architecture

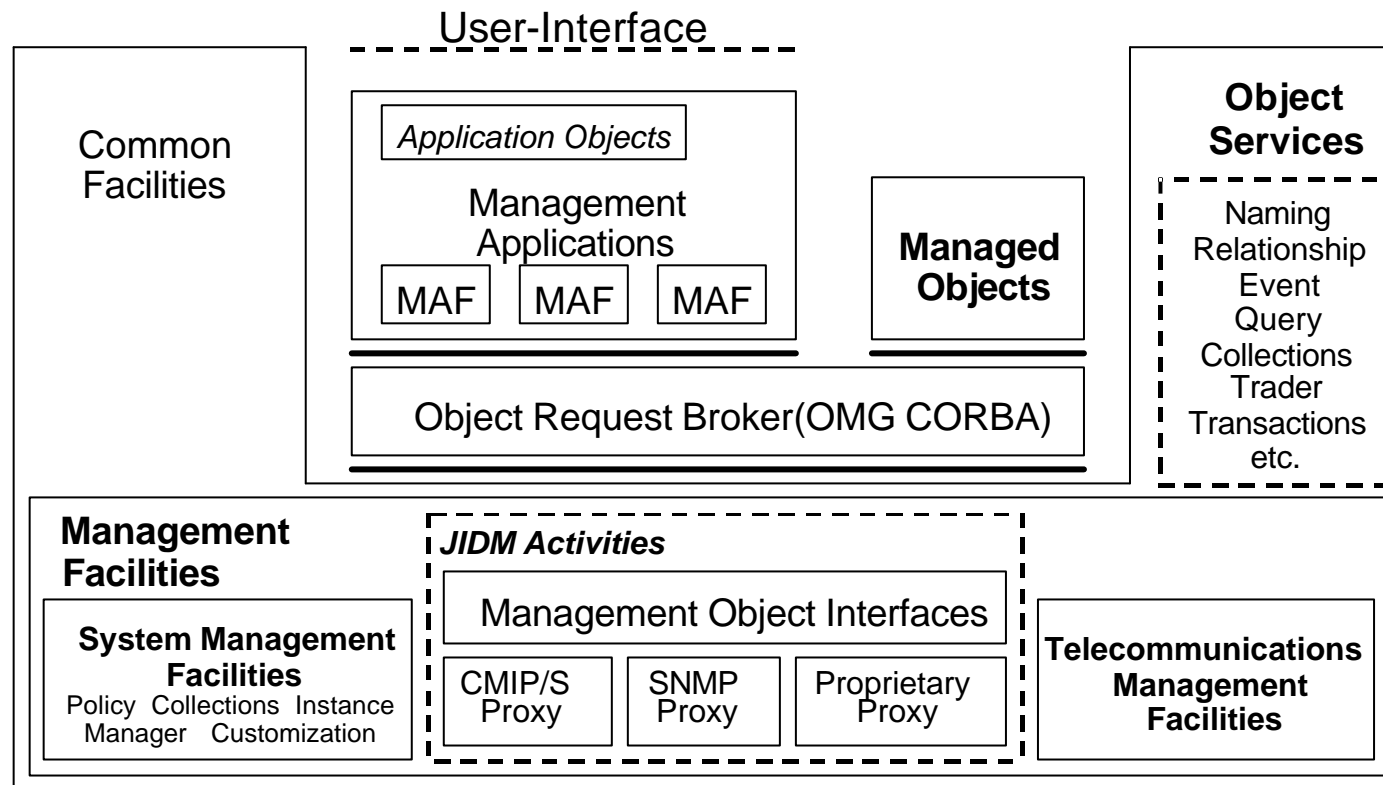


Feature Comparisons of SNMP, CMIP & CORBA

| | IETF SNMP | TMN CMIP | CORBA |
|-------------------|----------------------------------|---|--|
| | SNMP SMI () | GDMO () | IDL () |
| | Get, GetNext, Set, Trap | M-GET, M-ACTION, M-SET, M-DELETE M-CANCEL-GET, M-CREATE, | Request, Response, CancelRequest, LocateReply, CloseConnection, MessageError |
| | - , - | - , - | - |
| | | | |
| | | M.3400 | COS Specification |
| Scoping Filtering | | | |
| | | | |
| | Trap | M - EVENT - REPORT | Event Service |

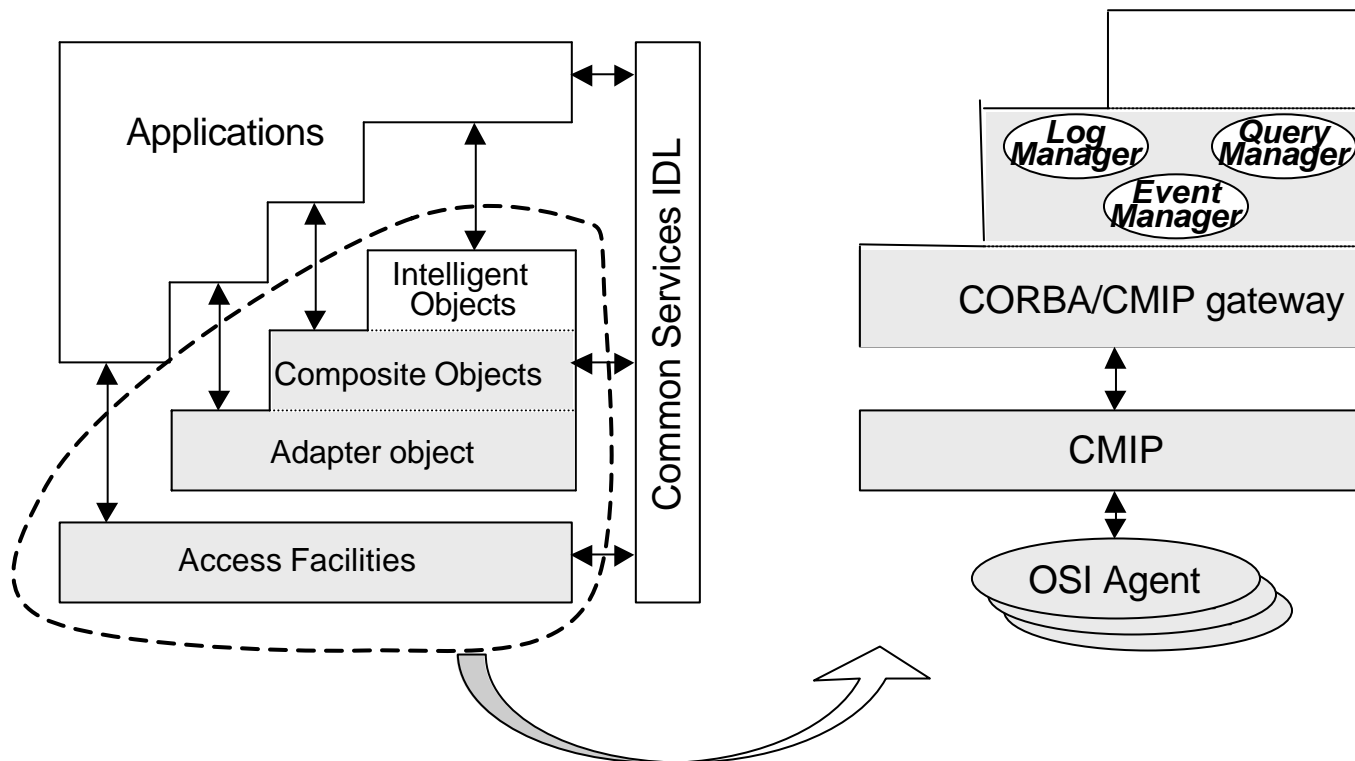


Related Work (4) - OMG



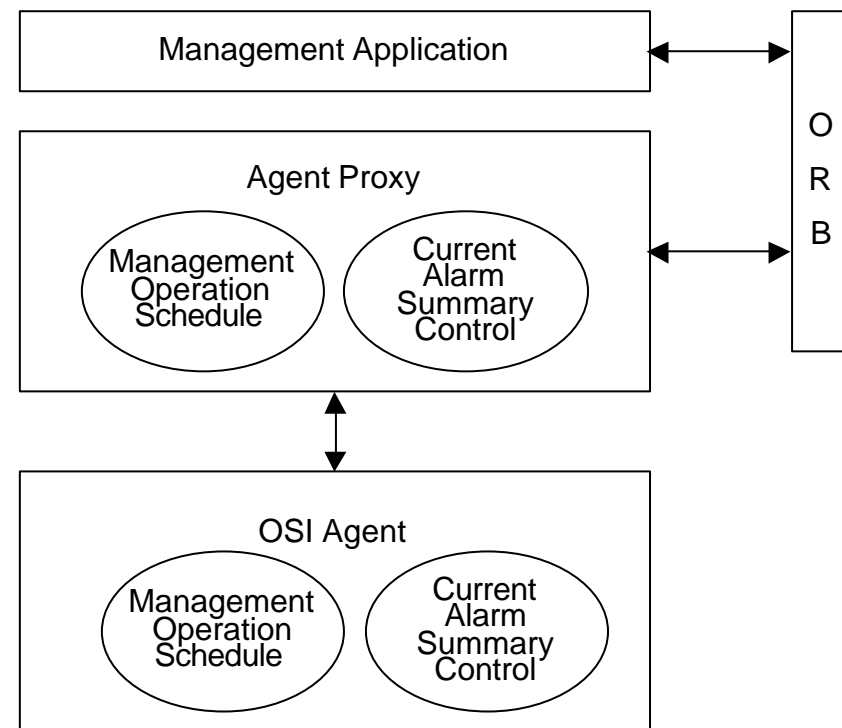
Related Work (5) - ACTS

TMF Management System Framework Extended Architecture by ACTS



Related Work (6) - Westphall

- Alarm Surveillance
- OSI
 - Current Alarm Summary Control
 - Management Operation Schedule
 - ATM switch

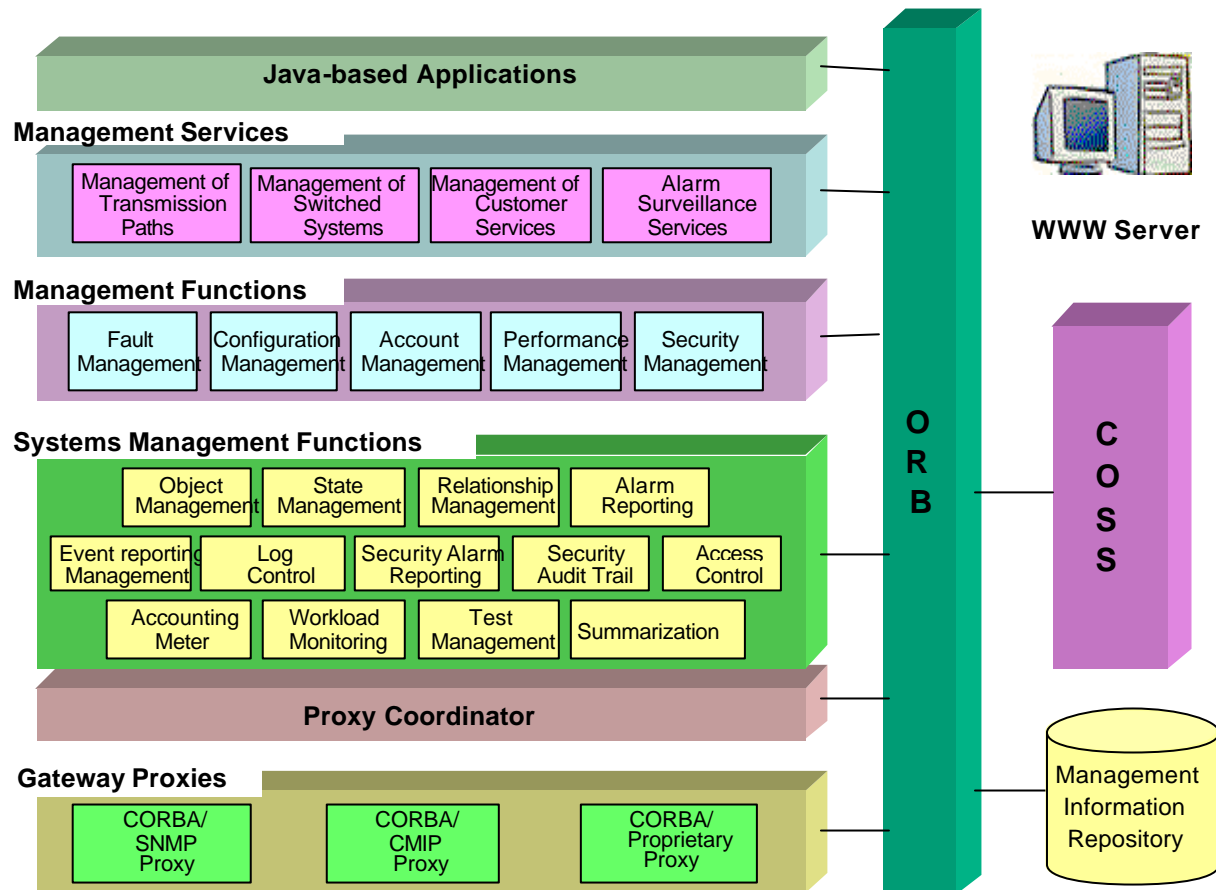


Requirements

- - Naming Addressing
 -
 -
 -
 - CORBA TMN

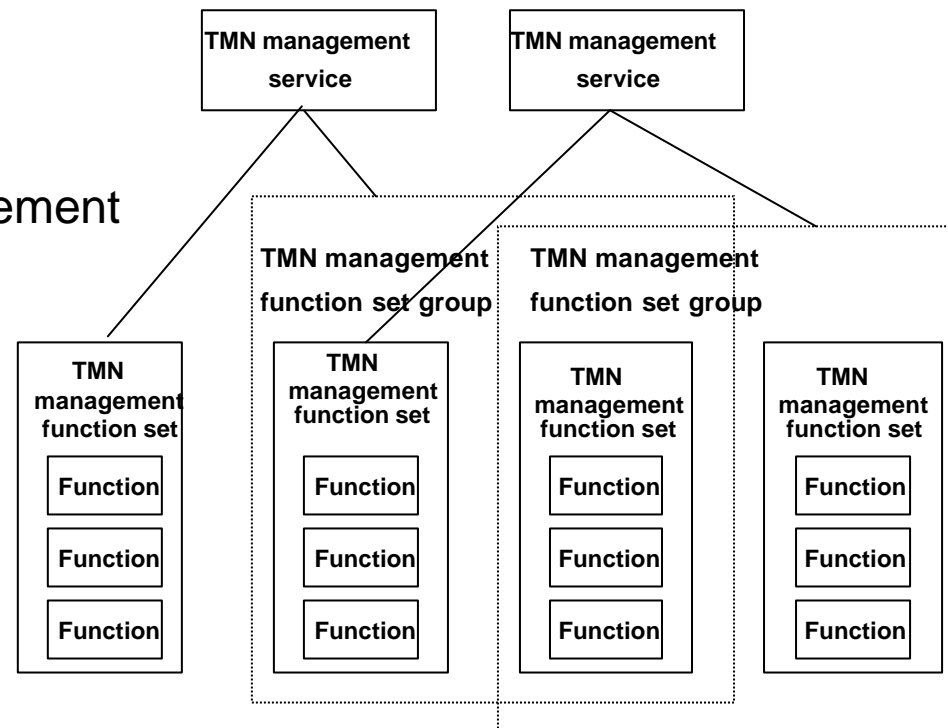


Proposed Integrated Network Management Architecture (INMA)

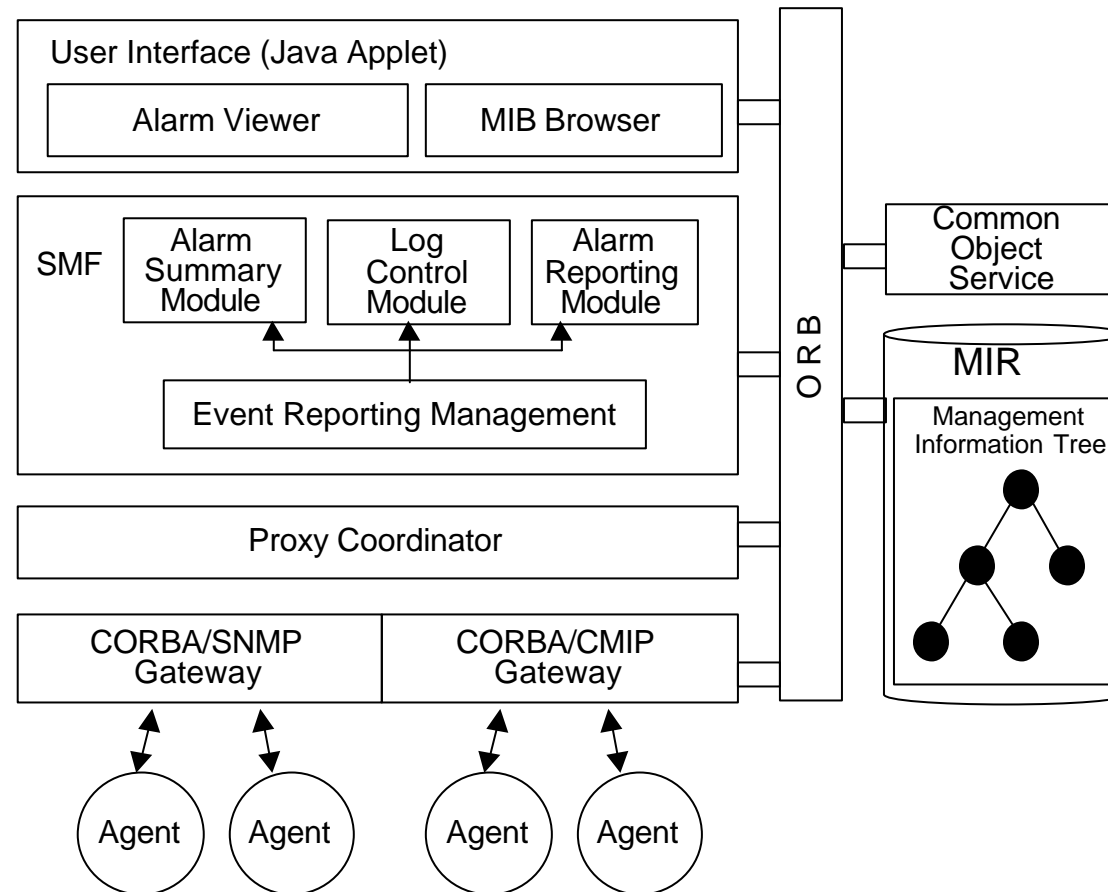


Alarm Surveillance System Requirements

- TMN M.3400
 - Alarm Reporting
 - Log Control
 - Alarm Summary
 - Event Criteria Management
 - Alarm Indication Management



Design



User Interface

- Alarm Viewer

- Alarm

- Alarm

- Alarm

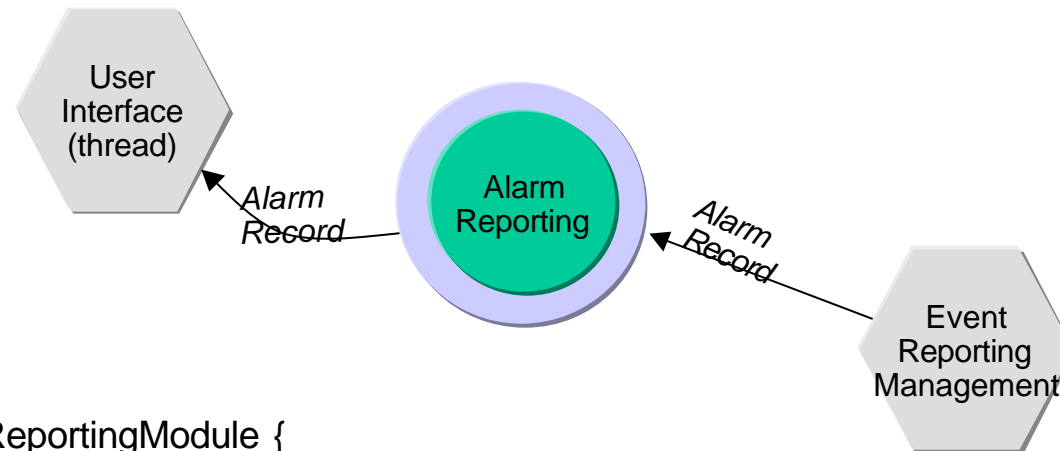
- Alarm

- MIB Browser

-



SMF - Alarm Reporting



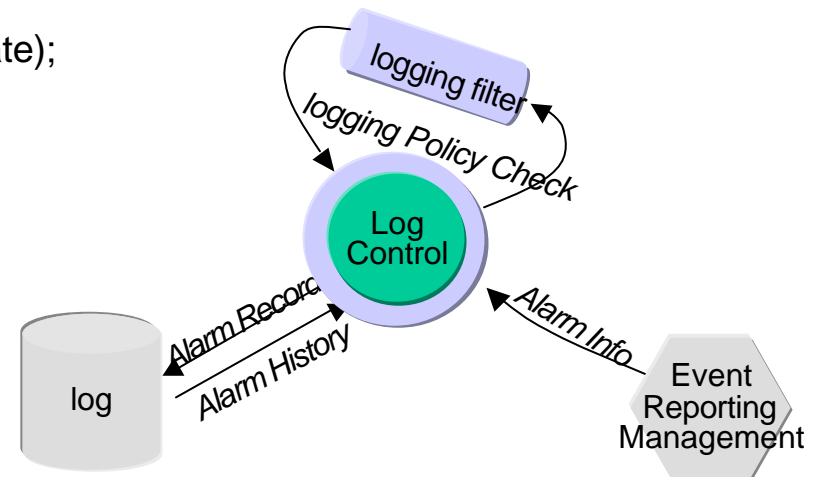
```
module AlarmReportingModule {  
    interface AlarmReporting {  
        AdminState alarm_reporting_state_get();  
        void alarm_reporting_state_set(in AdminState state)  
        void report_alarm(in AlarmRecord alarm);  
        short alert_alarm(out AlarmRecord alarm);  
    };  
};
```



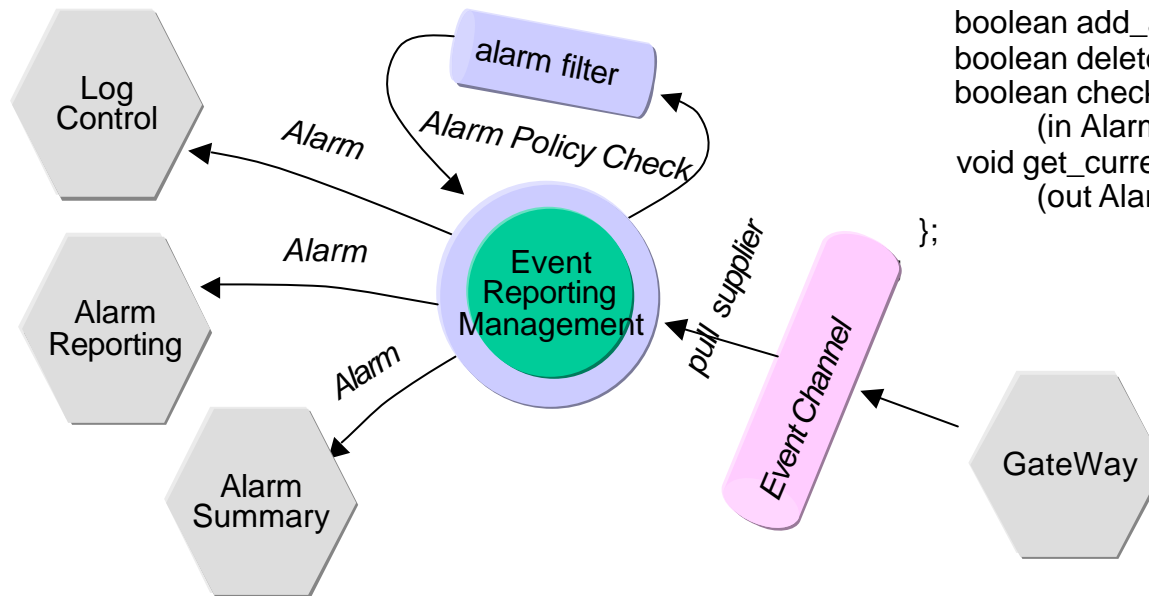
SMF - Log Control

```
module LogControlModule {
  interface LogControl {
    AdminState log_control_state_get ();
    void log_control_state_set (in AdminState state);
    void retrieve_log (in string hostname,
                      out long HOWMANY,
                      out AlarmRecordList alarmlist);
    void logging (in AlarmRecord alarmrecord );
  };

  interface LogFilter {
    boolean set_filter (in AlarmType filter);
    boolean delet_filter (in AlarmType filter);
    boolean check_filter_list(in AlarmType filter);
    void get_current_log_filter_list (out LogFilterList filterlist);
  };
};
```



SMF - Event Reporting Management



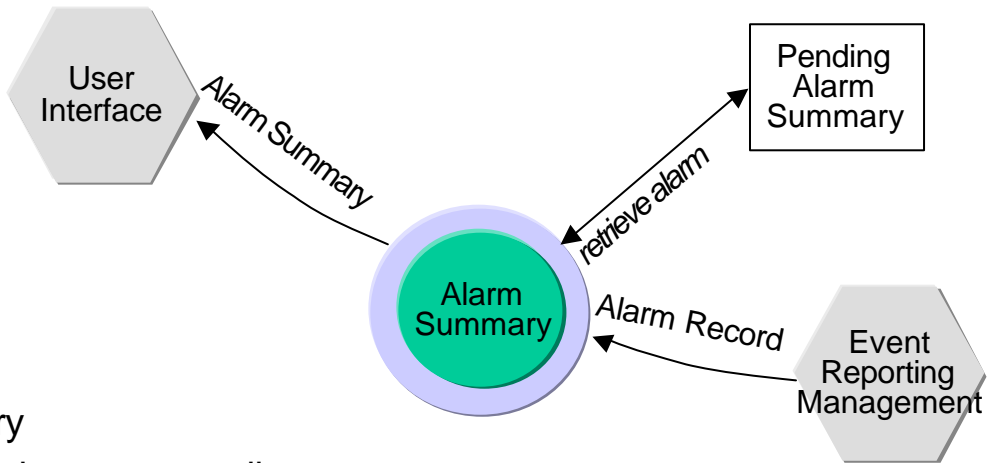
```

module EventReportingManagementModule {
    interface EventReportingManagement {
        AdminState event_reporting_management_get ();
        void event_reporting_management_set
            (in AdminState state);
        void init_ERM ();
    };

    interface AlarmFilter {
        boolean add_alarm_filter (in AlarmType filter);
        boolean delete_alarm_filter (in AlarmType filter);
        boolean check_alarm_filter_list
            (in AlarmType filter);
        void get_current_alarm_filter_list
            (out AlarmFilterList filterlist);
    };
};
    
```



SMF - Alarm Summary

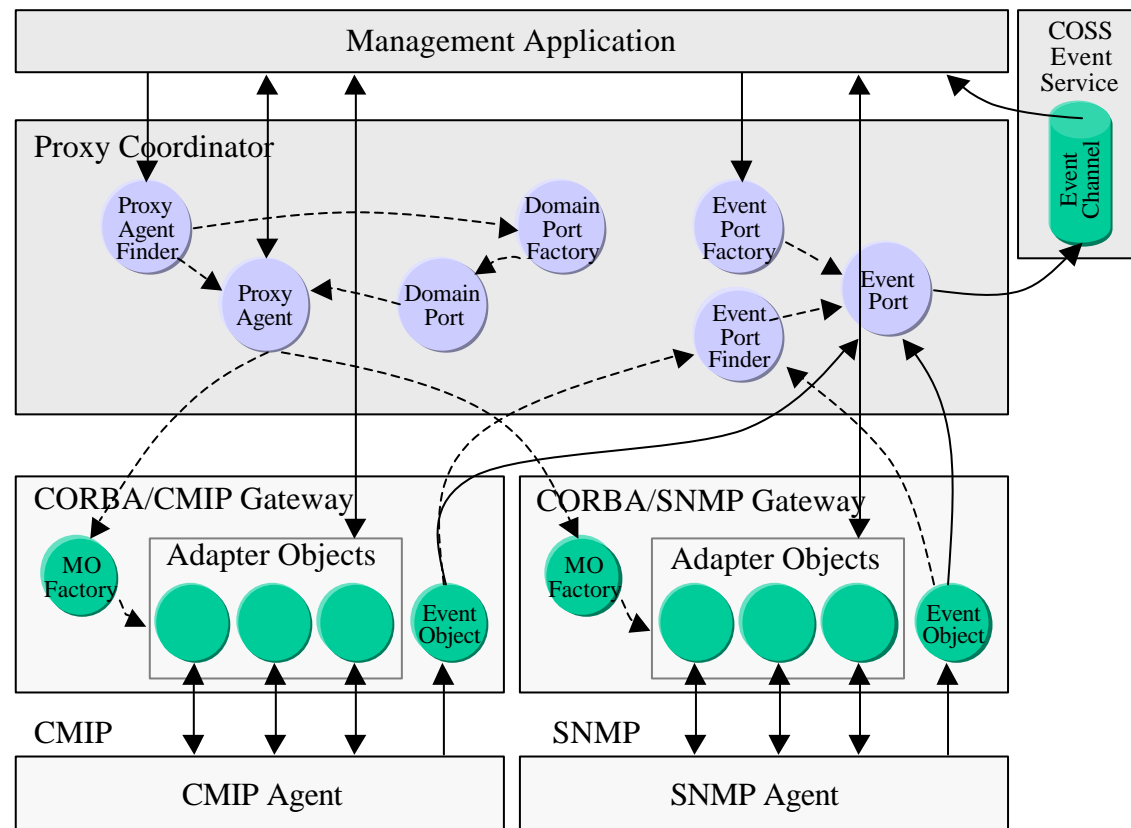


```
module AlarmSummaryModule {  
  interface AlarmSummary {  
    void get_alarm_summary  
      (out AlarmRecordList alarmsummarylist,  
       out long HOWMANY);  
    void insert_alarm_summary(in AlarmRecord alarm);  
    void delete_alarm_summary(in AlarmRecord alarmrec);  
  };  
};
```



Proxy Coordinator & Gateway Proxy

- JIDM Facility
- SNMPMgmt Facility
- OSIMgmt Facility

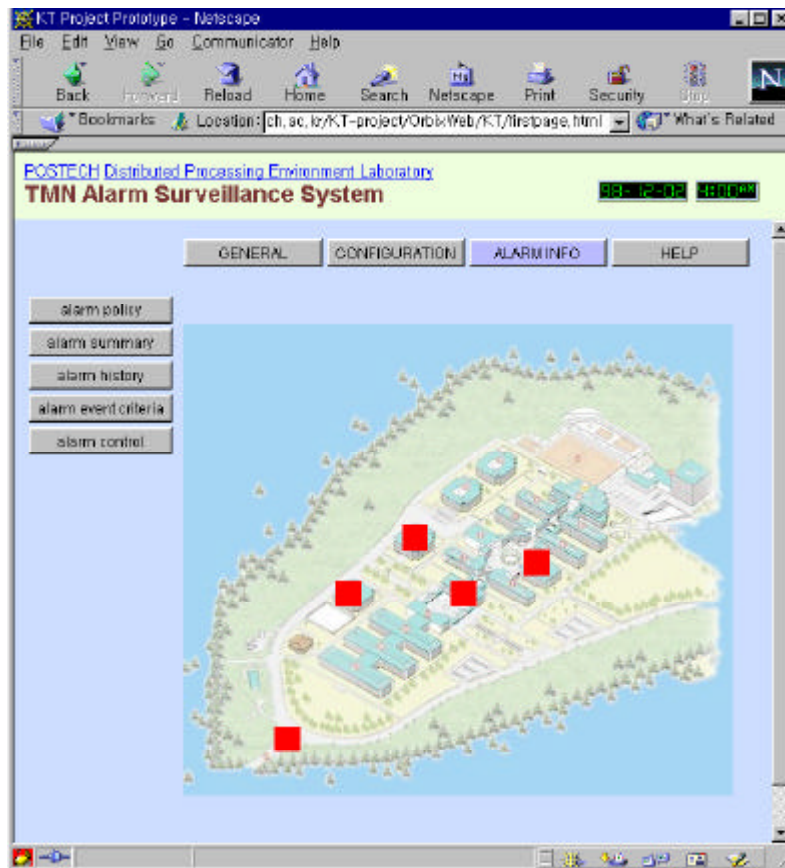


Implementation

- TMN
 - CMIP Agent
 - SNMP Agent
- - Sun Ultra 1, Solaris 2.5
 - IONA Orbix 2.3
 - IDL -> C++ (Stub), (Skeleton)



Alarm Viewer



The screenshot shows a "Table View" window with the following data:

| tcpConnState | tcpConnLocalA... | tcpConnL... | tcpConnRem... | tcpConnRe... |
|--------------|------------------|-------------|---------------|--------------|
| 11 | 155.230.12.51 | 80 | 141.223.82.25 | 2360 |
| 11 | 155.230.12.51 | 80 | 141.223.82.25 | 2363 |
| 11 | 155.230.12.51 | 80 | 141.223.82.25 | 2364 |
| 11 | 155.230.12.51 | 80 | 141.223.82.25 | 2368 |
| 11 | 155.230.12.51 | 80 | 141.223.82.25 | 2369 |
| 11 | 155.230.12.51 | 80 | 141.223.82.25 | 2370 |
| 11 | 155.230.12.51 | 80 | 141.223.82.25 | 2371 |
| 11 | 155.230.12.51 | 80 | 141.223.82.25 | 2372 |
| 11 | 155.230.12.51 | 80 | 141.223.82.25 | 2373 |
| 11 | 155.230.12.51 | 80 | 147.47.211.10 | 62685 |

Warning: Applet Window



Conclusion & Future Work

- Alarm Surveillance System

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- CORBA IIOP Web 가

- - 9 SMF
 - NMS
 - Proprietary

