CS7012: Management of Networks and Distributed Systems

Dr. Kris McGlinn
Kris.McGlinn@scss.tcd.ie
Course Objectives

At the end of this course you should be able to:
1. identify key issues encountered in managing networks, applications and Systems
2. apply common techniques and technologies to network & system management problems
3. analyse the future trends in networks and distributed system management
Course Organisation and Philosophy

• 3 lectures per week
• Distribution of selected technical research papers (for discussion and presentation in classroom)
• One (small) course project to be completed before end of semester

**IMPORTANT:** Lectures/seminars only introduce topics. Students are expected to perform background reading on the major course topics
Administrative Matters

• Lectures:
  – Monday 11:00 Salmon
  – Monday 16:00 Joly
  – Thursdays 14:00 LB01

• Kris.McGlinn@scss.tcd.ie

• https://www.scss.tcd.ie/~mcglink/lectures/CS7012/
Examination Paper

• Mgt of Networks & Distributed systems

• Three questions drawn from this course
Overview of Syllabus

• Unit 1 - Principles to Network Management
• Unit 2 - Internet Network Management (SNMP)
• Unit 3 - Telecommunication Management (OSI/TMN)
• Unit 4 - Web Based Enterprise Management (DMTF)
• Unit 5 - Knowledge driven Management technology
Unit 1 - Principles to Network Mgt

• **What** is Network & Systems Management?
• **Why** is the Study of Management important?
• **What** are the current models/approaches?
• **What** are its ‘Functional Areas’?
• **What** are the standards?
Unit 2 - Internet Network Management

• The **Simple Network Management Protocol**
• Structure of Management Information & Management Info. Bases
• How SNMP **Operates**
• **Limitations and Future Developments of SNMP**
Unit 3 - Telecommunication Management - the OSI Approach

• OSI based Network Management Concepts & Framework
• OSI Managers & Agents (& Mgt. Info. Bases)
• OSI Management Services & Protocols: CMISE & CMIP
• GDMO and the design of Management Information Bases and Managed Objects
• Example usage of OSI management
Unit 3 (cont) - OSI Management In the Large

- Telecommunications Management Network:
  - Principles
  - Models
  - Applications

- TMN Models, Functions & Interfaces

- TMN Functional Architecture
Unit 4 – Web Based Enterprise Management (DMTF)

• What is Enterprise Management?
• What are the drivers in Enterprise Mgt?
• Distributed Enterprise Management
  – Web Based Enterprise Management
  – Common Information Model
• Other aspects:
  – Directory Enabled Networks
Unit 5 Knowledge based management technology

• Policy Based Management

• Ontology & Management