COMPUTER NETWORKS

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Before We Start?

There is no such thing as a silly question.

Course Introduction

- About Me
- Course Outline
- Course Materials
  - Expectations
- Course Assessment

About your Lecturer

About Me

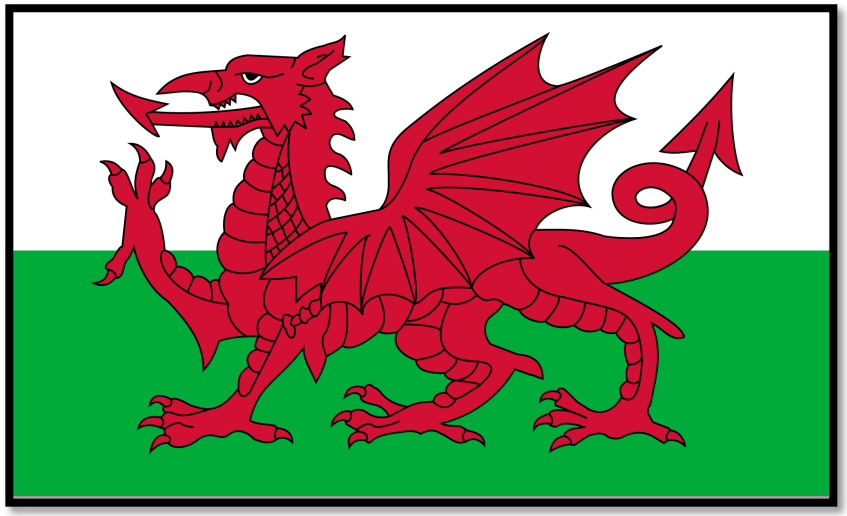
- Born - Dale, Wales
  - Population - 225
- Live – Aberdeen, Scotland
  - Population – 196,670
- Shenyang
  - Population – 8,106,171

Wales


M4
Dublin
Liverpool
Chester
Peak District
National Park
Carlow
Snowdonia
National Park
M6
Nottingha
M11
Kilkenny
M54
Leiceste
ENGLAND
Wexford
Waterford
WALES
M5
M40
The Cotswolds
AONB
Oxford
Swansea
Swindon
M4
Cardiff
Bristol
Map data ©2016 Goo

Wales - The people

- Welsh
- Population – 3,063,456
- Sports – Football & Rugby



Y Ddraig Goch

Mountains

Sea

Lighthouses

Scotland


Inverness
Aberdeen
SCOTLAND
Dundee
Edinburgh
Glasgow
United
Kingdom
NORTHERN

Scotland - The people

- Scottish or Scots
- Population – 5,373,000
- Sports – Football, Rugby & Golf

Saltire

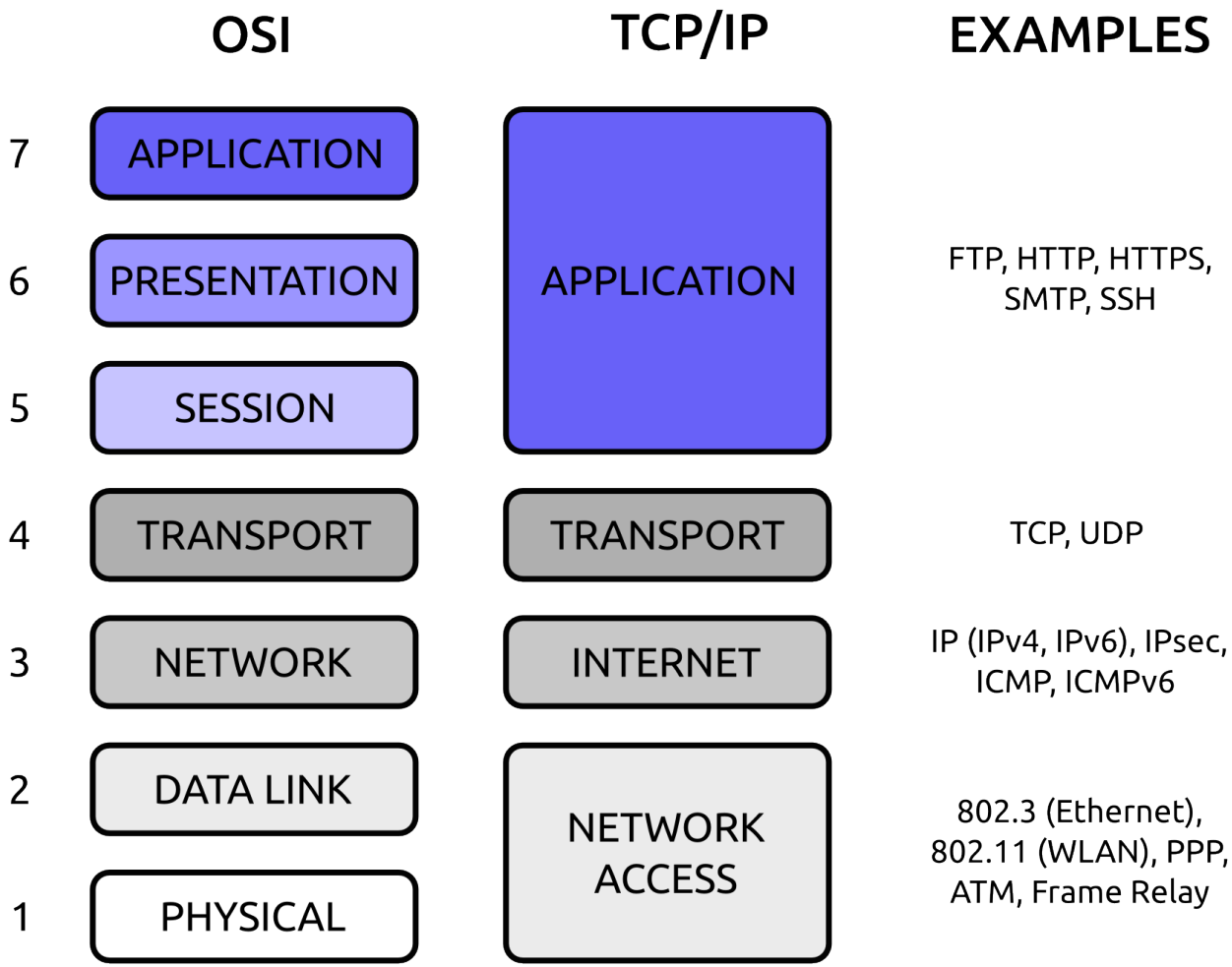
Bigger Mountains

Lots of Castles

Bagpipes

Course Outline

What are we going to cover?



How are we going to cover all that?

- 12 sessions
- Lectures
  - 2 hours
- Lab Sessions
  - 2 hours

Introduction

1.1 Uses of Computer Networks	know
1.2 Network Hardware	master
1.3 Network Software	master
1.4 Reference Models	master skillfully
1.5 Example Networks	understand
1.6 Network Standardization	master
1.7 Metric Units	master skillfully

The Physical Layer

2.1 Theoretical Basis for Data Communication	master
2.2 Guided Transmission Media	master skillfully
2.3 Wireless Transmission	master skillfully
2.4 Communication Satellites	know
2.5 Digital Modulation and Multiplexing	master skillfully
2.6 Public Switched Telephone Network	understand
2.7 Mobile Telephone System	understand
2.8 Cable Television	understand

The Data Link Layer

- 3.1 Data Link Layer Design Issues — understand
- 3.2 Error Detection and Correction — master
- 3.3 Elementary Data Link Protocols — master skillfully
- 3.4 Sliding Window Protocols — master skillfully
- 3.5 Example Data Link Protocols — know

The Media Access Control Sub-Layer

4.1 The Channel Allocation Problem	understand
4.2 Multiple Access Protocols	master skillfully
4.3 Ethernet	master skillfully
4.4 Wireless LANs	master
4.5 Broadband Wireless	understand
4.6 Bluetooth	understand
4.7 RFID	understand
4.8 Data Link Layer Switching	master skillfully

The Network Layer

- 5.1 Design Issues — understand
- 5.2 Routing Algorithms — master skillfully
- 5.3 Congestion Control — understand
- 5.4 Quality of Service — understand
- 5.5 Internetworking — master skillfully
- 5.6 Network Layer of the Internet — master skillfully

The Transport Layer

- 6.1 The Transport Service — master
- 6.2 Elements of Transport Protocols — master
- 6.3 Congestion Control — understand
- 6.4 The Internet Transport Protocols: TCP — master skillfully
- 6.5The Internet Transport Protocols: UDP — master skillfully
- 6.6 Socket Programming — master

The Application Layer

- 7.1 DNS - The Domain Name System understand
- 7.2 Telnet - TerminaL NETwork understand
- 7.3 FTP - File Transfer Protocol understand
- 7.4 Electronic Mail understand
- 7.5 The World Wide Web understand

Network Security

- 8.1 Cryptography — understand
- 8.2 Quantum Cryptography — master skillfully
- 8.3 Freedom of Speech — understand

Course Materials

Where can I find more information?

- Resources
  - Computer Networks – Tanenbaum
  - Computer Networking and the Internet – Halsall
  - Java Network Programming – Harold