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## Lectures by Dr. Les Cottrell, SLAC, Stanford

University of Helwan / Egypt, Sept 18 – Oct 3, 2010

1. **The Internet, the world cup and Africa**, see <http://www.slac.stanford.edu/grp/scs/net/talk10/helwan10.pptx>  
*Thursday 30th September, 10:15-10:45am Grid Day*
  - Methodology
  - Current State
  - What is happening?
  - Impact
  - Next Steps
2. **Internet History, trends and futures**, see <http://www.slac.stanford.edu/grp/scs/net/talk10/internet-history.pptx>  
*Sunday 26th September 9:00-9:45am*
  - Brief history
  - Design goals
  - Growth & Success
  - Current challenges
  - Internet NG
  - What is driving the changes
3. **How is the Internet performing**, see <http://www.slac.stanford.edu/grp/scs/net/talk10/perform.pptx>  
*Sunday 26th September 9:45-10:30am*
  - Internet characteristics
  - Users, capacities, satellites, packet sizes, protocols, routing, flows
  - How is it used apps etc.
  - How the Internet worldwide is performing as seen by various measurements and metrics
  - Application requirements
4. **Cell Phones**, see <http://www.slac.stanford.edu/grp/scs/net/talk10/cellphone-work.pptx>  
*Monday 27th September, 9:00 - 9:45am*
  - Not covering Cordless phones, CB radios, pagers, car phones, Iridium etc.
  - How they work
  - History
  - Cell phone components
  - Power
  - Carriers
  - Coverage
  - Bars
  - Growth
  - Concerns
5. **Smart phones & other Mobile computing**, see <http://www.slac.stanford.edu/grp/scs/net/talk10/smartphones.pptx>  
*Monday 27th September, 9:45 - 10:30am*
  - Wireless
  - What is a smartphone and their growth
  - Why are they important
  - How are they used
  - What's coming
  - Bandwidth impact
  - Not for everybody yet
  - Laptops & Netbooks
  - Smartbooks
  - Tablets
  - WiFi
    - How it works
    - Protocols
    - WiFi and smartphones
6. **Diagnosing network problems for non-networkers**, see <http://www.slac.stanford.edu/grp/scs/net/talk10/diagnosis.pptx>  
*Wednesday 29th September, 16:00 - 17:30pm*
  - Goal: provide a practical guide to debugging common problems
  - Why is diagnosis difficult yet important?
  - Local host
  - Ping, Traceroute, PingRoute
  - Looking at time series
  - Where is a node
  - Who do you tell, what do you say?
  - Case studies and More Information
7. **Network Measurements**, see <http://www.slac.stanford.edu/grp/scs/net/talk10/internet-measure.pptx>  
*Wednesday 29th September, 17:30-19:00pm*
  - Why is measurement important?
  - LAN vs WAN
  - Passive
    - SNMP, Netflow
    - Effects of measurement interval
  - Active
  - Tools various
    - Ping, traceroute
    - Available bandwidth, achievable bandwidth

- PingER
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## Others

Probably we will not cover the items below due to lack of time.

1. **Geolocation**, see <http://www.slac.stanford.edu/grp/scs/net/talk10/geolocation.pptx>
  - Importance
  - How is it done
  - Dynamic method
    - RTT => distance
    - Geometrical methods of finding location from circles
  - Application
  - Challenges
2. **Internet case studies**
  - Digital Divide and Africa (some of this will be covered in the Grid Day presentation)
  - Cable cuts
  - Impact of TEIN3
  - Pakistan
3. **How does the Internet work**, see <http://www.slac.stanford.edu/grp/scs/net/talk09/ictp-tcpip.ppt>