Q & A Session for Coursework 4

GZ01/3035 Networked Systems
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Distance-Vector Routing

• One of the three major classes of routing protocols
• Simple and elegant
• Works well on small networks
• Interesting behaviour in dynamic conditions
Implementing Distance-Vector Routing

- Build a virtual router
- Most of the code already given
- No need to implement triggered updates
- Code in Java
Coursework Tasks

- 3 stages:
  - Baseline DV
  - Split Horizon with Poison Reverse
  - Expiration of table entries
Coursework Tasks

- Each stage has targeted set of tests
- Tests are (.cfg) files
- 5 test configurations provided
Baseline DV

• Implement “vanilla” DV routing in DV.java:
  • DV (interface RoutingAlgorithm)
  • DVRoutingTableEntry (interface RoutingTableEntry)

• 2 test cases: test1.cfg and test2.cfg
Split Horizon with Poison Reverse SH/PR

- Performance enhancement
- 2 test cases: test3.cfg and test4.cfg

Step 1:
- Run tests with SH/PR disabled.
- What do you observe?

Step 2:
- Implement and enable SH/PR.
- What do the 2 tests output now, and why?
Expire Routing Table Entries

- Stale links should not persist forever
- Enforce deadline for expiring entries
- Read RIP RFC2453
- Same timing constraints, as multiple of update interval
- Note: RFC deals with possibility of lost packets
- Test test5.cfg
So, how do I start?

- Use **lab machines** (remotely accessible)
- `tar vzxf ~ucacbnk/gz01-2011/cw4.tar.gz`
- `make` and `make javadoc`
- All your code goes in DV.java
- Implement all methods that are empty
How do I test?

- Configuration files (.cfg)
- `java Simulator config.cfg`
- 5 test configurations provided
- The **machine code** of the solution also provided
- IMPORTANT: See coursework text about how to use solution!!!
Configuration Files

updateInt 10
preverse off
expire off
router 0 2 DVsolution
router 1 2 DVsolution
router 2 2 DVsolution
link 0.0.1 1.0.1
link 1.1.1 2.0.1
link 2.1.1 0.1.1
send 10 0 1

.....
downlink 10 1.1 2.0
uplink 12 1.1 2.0
dumpPacketStats 14 all
dumprt 14 all
stop 100
Flags

- preverse and expire in (.cfg) files
- Implement:
  - setAllowPReverse(boolean flag)
  - setAllowExpire(boolean flag)
- Use in code around enhancements
Does it work?

• Yes, if it has the same behaviour as the solution
  – Same routing table contents
  – Same routing decisions
Does it work? (2)

- Once more: check in handouts how you run the solution!
- Output of dumprt MUST be:
  
  \[
  \text{Router } [n] \\
  d \ [\text{destid}] \ i \ [\text{intid}] \ m \ [\text{metric}] \\
  \ldots \\
  \text{– And only the above!}
  \]
Help!

- Read the lecture notes, textbooks
- Read the code/documentation
- RIP RFC2453
- gz01-staff@cs.ucl.ac.uk
- Office hours