



Exam Hints



Exam Hints (Part 1)

- ▶ Tuesday, 13 Dec 2005, 13 – 16, S5
- ▶ There is a ton of paper you **could** read
 - Particularly RFCs, Internet drafts, etc.
 - But this would simply be too much.
- ▶ What you **SHOULD** do includes
 - Understand all the slides from the lectures
 - Read the overview parts of RTP, SAP, SDP, RTSP, and SIP
 - Need a good grasp of the big picture of the respective protocols
 - If there are questions about some core aspects, look them up
 - E.g., if the semantics of the Expires: header in the REGISTER message is unclear
 - E.g., if you don't know the purpose of a SIP Request URI
 - E.g., if you wonder what an RTSP session is and how it is created and destroyed
 - There are too many details: concentrate on those discussed in the lecture
 - E.g., there are many error codes and additional headers in SIP we did not talk about



Exam Hints (Part 1)

- ▶ Planning on 10 – 12 questions
- ▶ Questions will be about **concepts rather than details**
 - Concepts obviously include
Architecture, general operation and interactions, terminology, methods, and headers, basics of message exchanges
 - Concepts do not include
Syntax details, tiny exceptions, state machines, detailed call flows, numbers of response codes...
- ▶ May include a **small design task**
 - How would you build a system that does X?
 - Where to get which data from?
 - Which protocols to apply? How to combine them?
 - May leverage what you have learned in the assignments
- ▶ More to come next week...



Exam Hints (Part II)

- ▶ Range: All lectures except for the “Real World SIP” part today
- ▶ Things learned when looking closer at the exercises
- ▶ Again: concepts rather than details
 - But going once through all the slides will likely be insufficient
 - So, take your time
- ▶ Task structure
 - 10 – 12 in total
 - Large fraction with (relatively) short answers
 - 2 – 4 requiring more time
 - Possibly one “design” task
- ▶ Some sample questions (probably not used in the exam :-)



Sample Questions

Short tasks

- ▶ How is a SIP transaction identified?
- ▶ Why do RTP packets carry a sequence number and a timestamp?
- ▶ Why is jitter not a problem for real-time communications in packet networks? What *is* the problem?
- ▶ What are the IMG FETCH and RESOLVE operations used for?
- ▶ What is the media level a=rtpmap attribute in SDP used for?
- ▶ Sketch the operation of SIP digest authentication.



Sample Questions (2)

Longer tasks

- ▶ Sketch the interaction of RTP and RTCP for synchronizing two media streams (e.g., audio and video) from the same source.
- ▶ Outline the operation of the SIP REGISTER messages. Which different semantics are supported? Which parameters are used to control these semantics?
- ▶ What is the basic idea of audio redundancy encoding? Contrast this approach to generic FEC, e.g., for use with video.
- ▶ What are the semantics of the following RTSP message? Describe the key fields. When will it be sent? Who will send it?



Sample Questions (3)

Design tasks

- ▶ Sketch one approach (out of many possible ones) to realize a call recording feature for a SIP user who uses a SIP hardware phone without built-in recording capabilities. Remember that this service must not require cooperation from the remote party on a call. Describe which components you will use, which functions they perform and when and how they interact (protocols, messages).



Any other Questions...?