

Use Case How To

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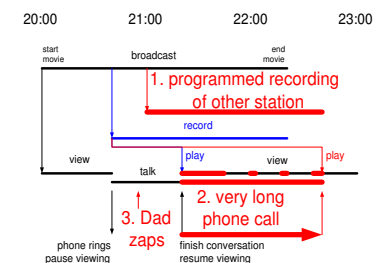
Abstract

Use cases are frequently used in Software Engineering. Use cases support specification and facilitate design, analysis, verification and testing. Many designers, unfortunately, apply use cases in a rather limited way. This presentation provides recommendations for effective use cases.

Distribution

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Why Use Cases?

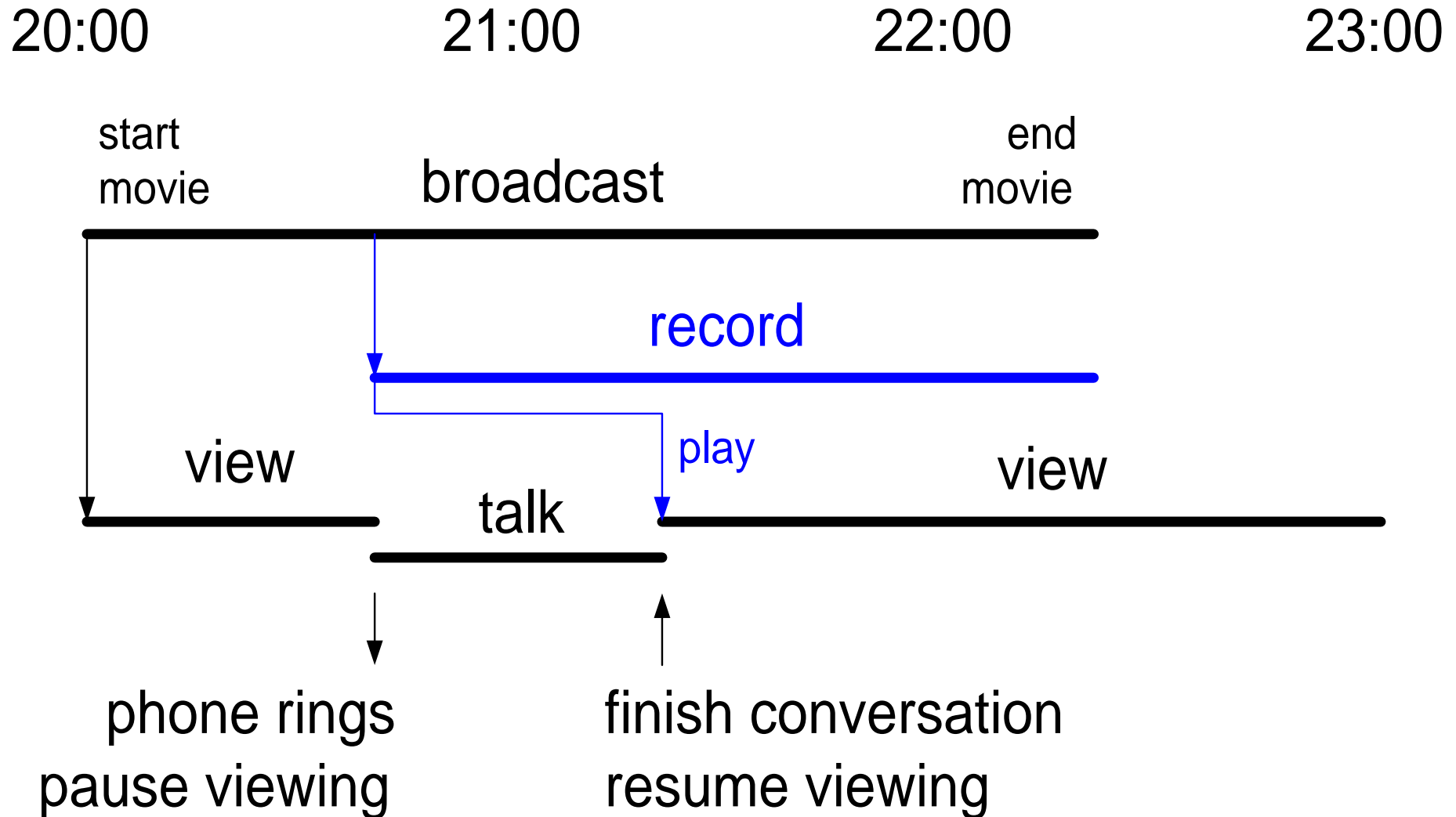
Supports or is part of specification

by providing specific data in user perspective

Facilitates analysis and design

Facilitates verification and testing

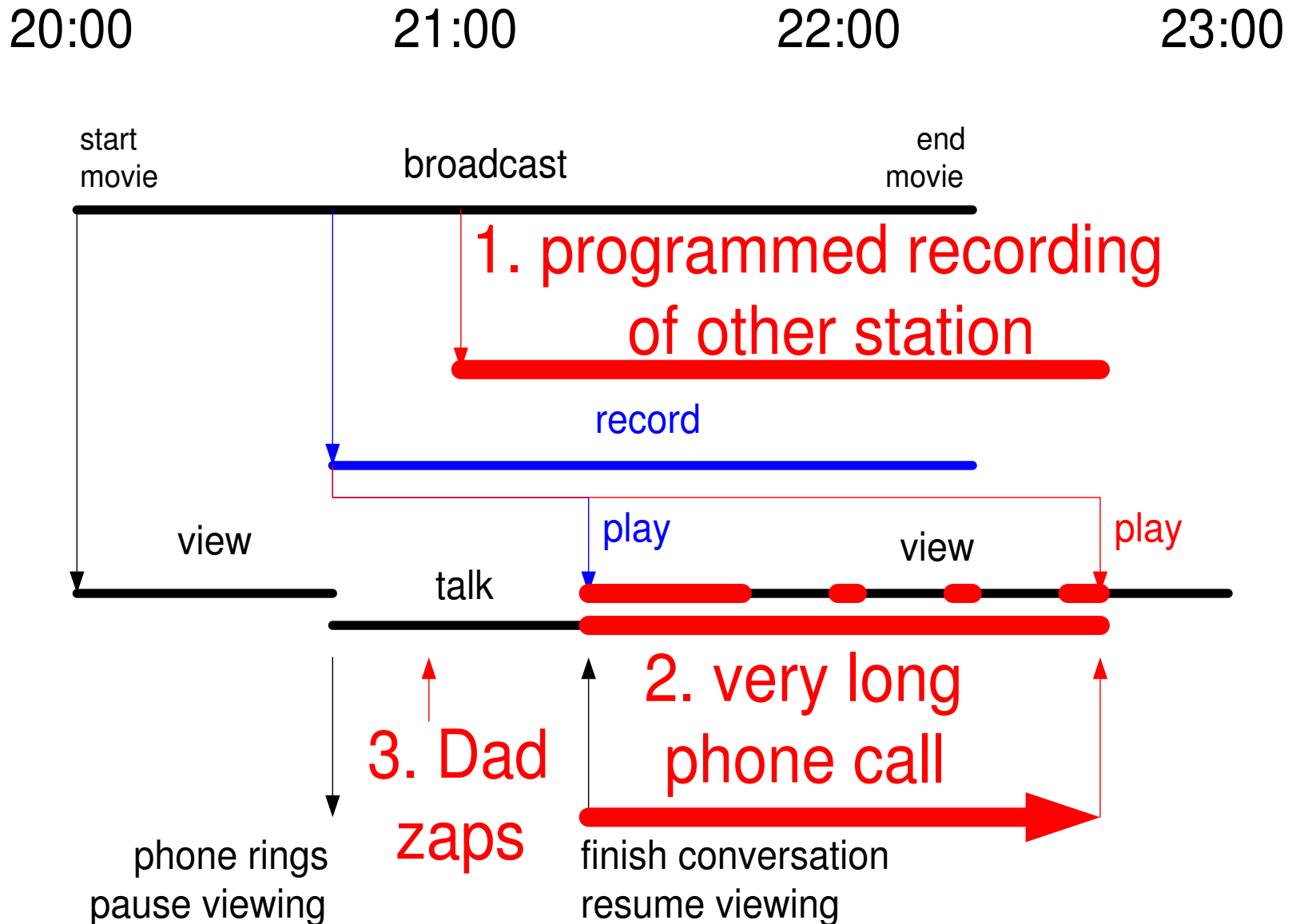
Example Time Shift recording



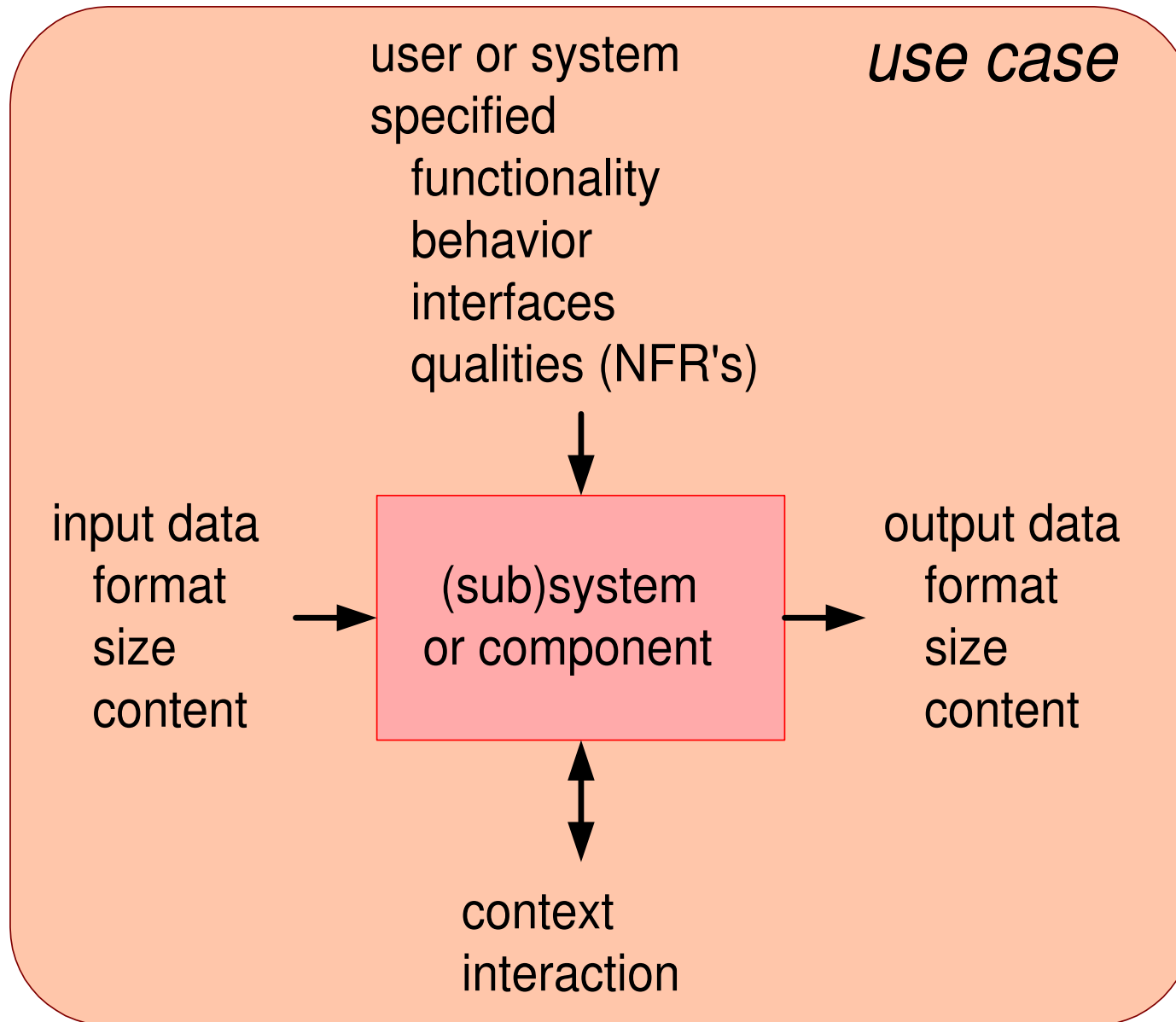
Construction limits intrude in User Experience

- number of tuners
- number of simultaneous streams (recording and playing)
- amount of available storage
- management strategy of storage space

What if?



Content of a Use Case



Example personal video recorder use case contents

typical use case(s)

interaction flow (functional aspects)

- select movie via directory
- start movie
- be able to pause or stop
- be able to skip forward or backward
- set recording quality

performance and other qualities (non-functional aspects)

- response times for start / stop
- response times for directory browsing
- end-of-movie behaviour
- relation recording quality and storage

worst case, exceptional, or change use case(s)

functional

- multiple inputs at the same time
- extreme long movie
- directory behaviour in case of
extreme many short movies

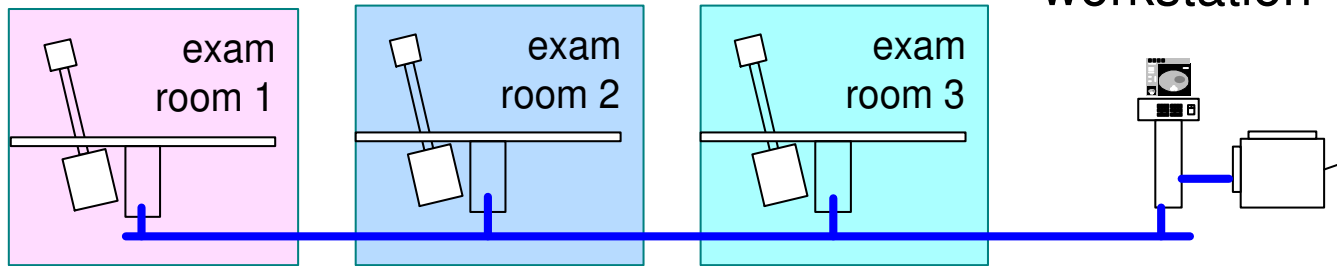
non-functional

- response time with multiple inputs
- image quality with multiple inputs
- insufficient free space
- response time with many directory entries
- replay quality while HQ recording

Example of Quantification of Typical Use Case

3 examination rooms connected to

1 medical imaging workstation + printer

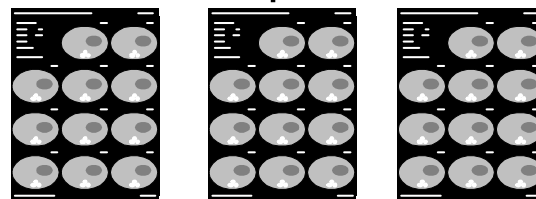


examination room: average 4 interleaved examinations / hour

image production: 20 1024² 8 bit images per examination

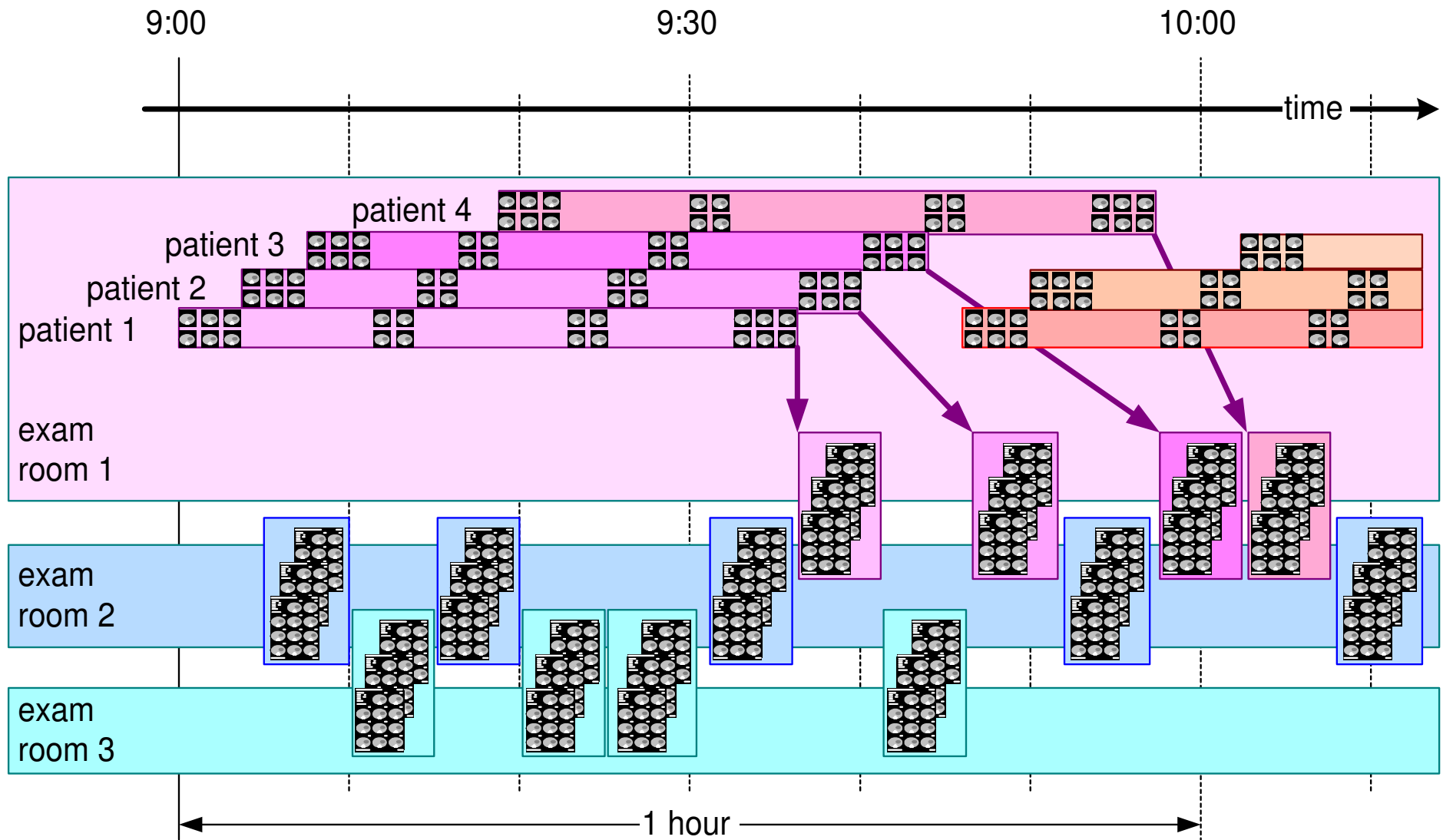


film production: 3 films of 4k*5k pixels each



high quality output
(bi-cubic interpolation)

Timing of this Use Case



Recommendations for working with use cases

- + combine related functions in one use case
- do not make a separate use case for every function
- + include non-functional requirements in the use cases

- + minimise the amount of required *worst case* and *exceptional use cases*
- excessive amounts of use cases propagate to excessive implementation efforts
- + reduce the amount of these use cases in steps
- a few well chosen *worst case* use cases simplifies the design