

Use Case How To

by *Gerrit Muller* University of South-Eastern Norway-NISE

e-mail: `gaudisite@gmail.com`

`www.gaudisite.nl`

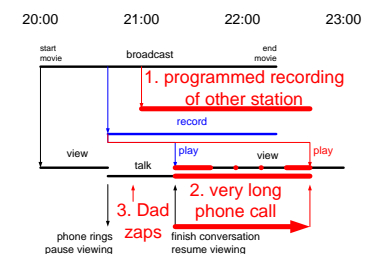
Abstract

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.

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Why Use Cases?

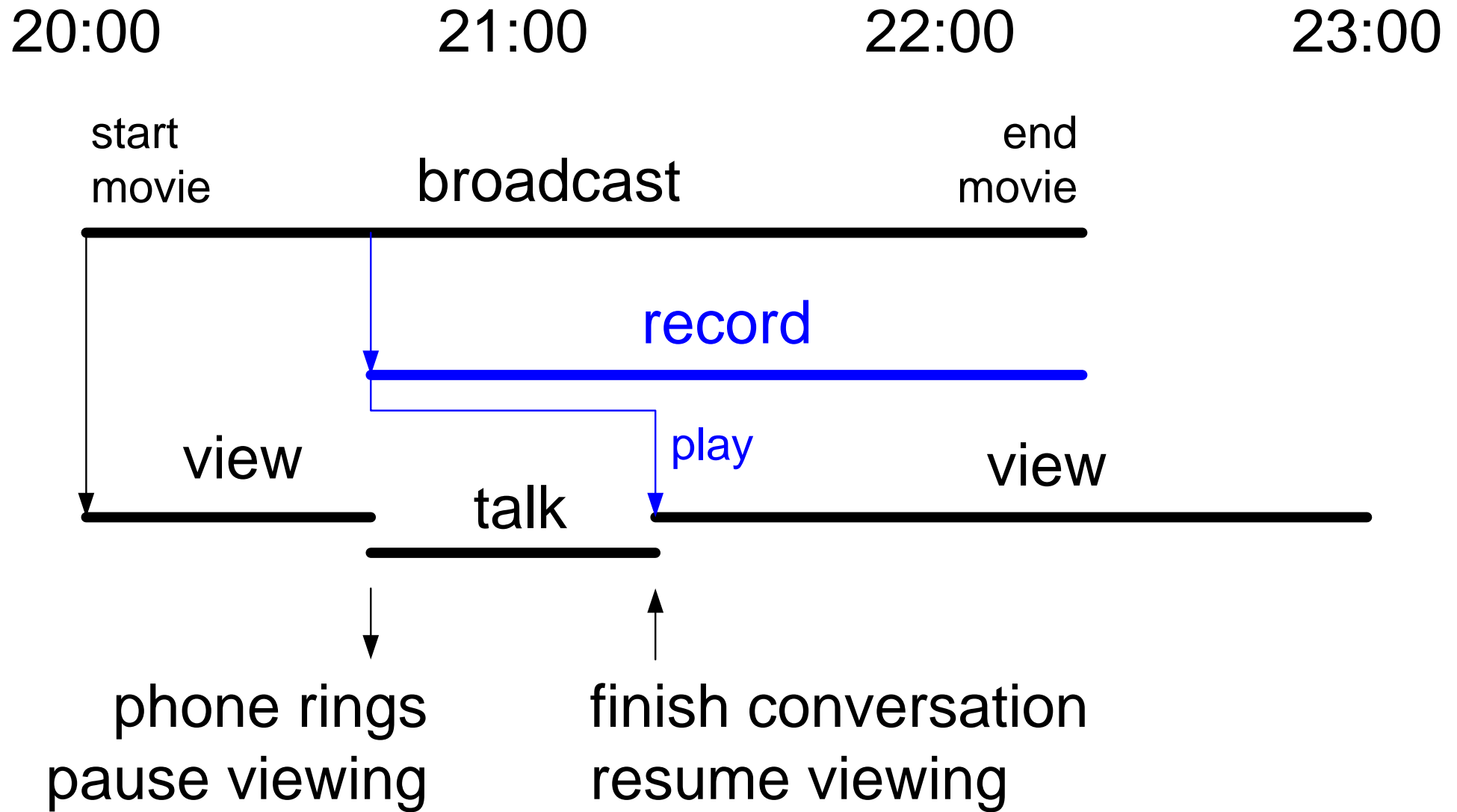
Supports or is part of specification

by providing specific data in user perspective

Facilitates analysis and design

Facilitates verification and testing

Example Time Shift recording

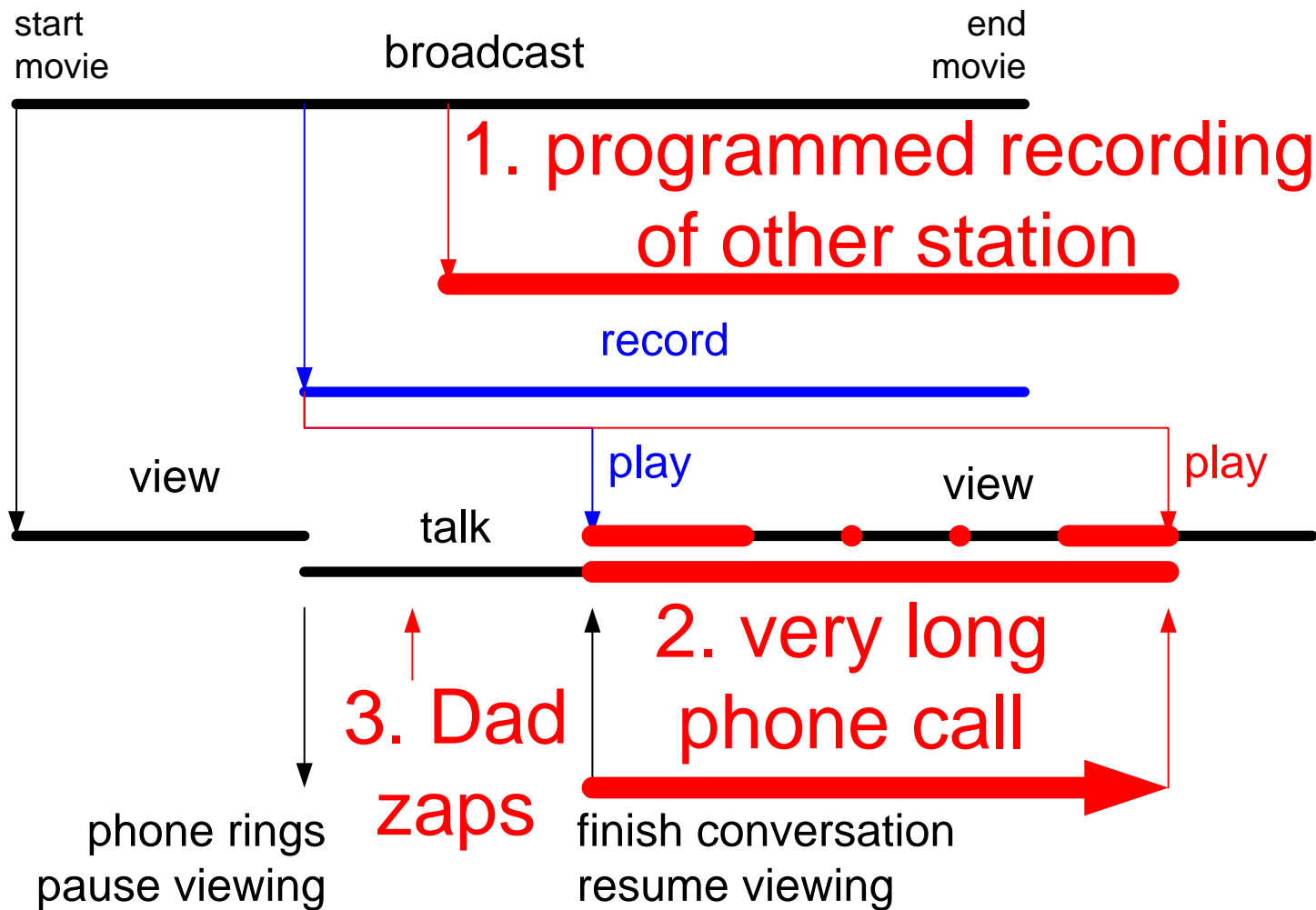


Construction limits intrude in User Experience

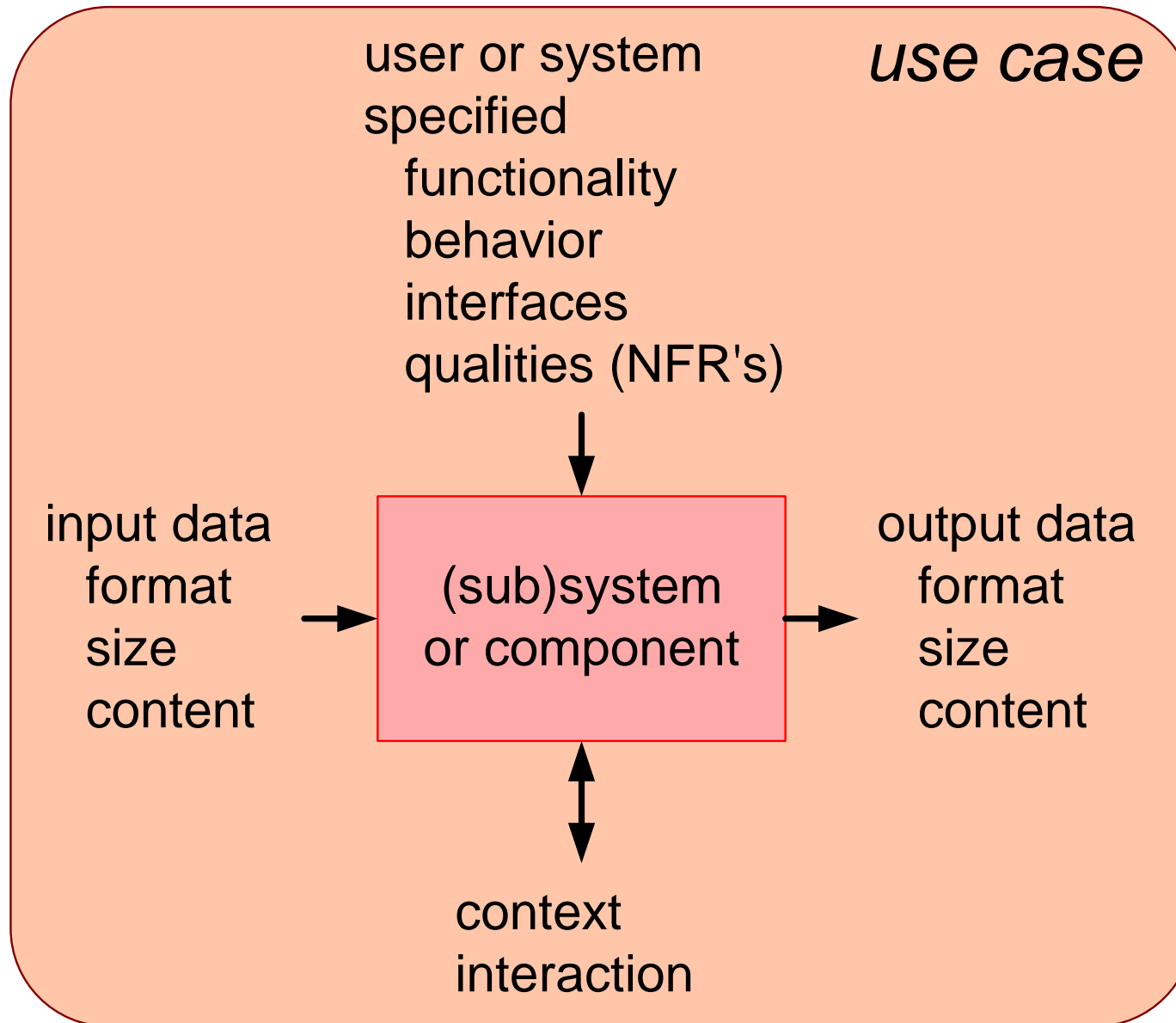
- number of tuners
- number of simultaneous streams (recording and playing)
- amount of available storage
- management strategy of storage space

What if?

20:00 21:00 22:00 23:00



Content of a Use Case



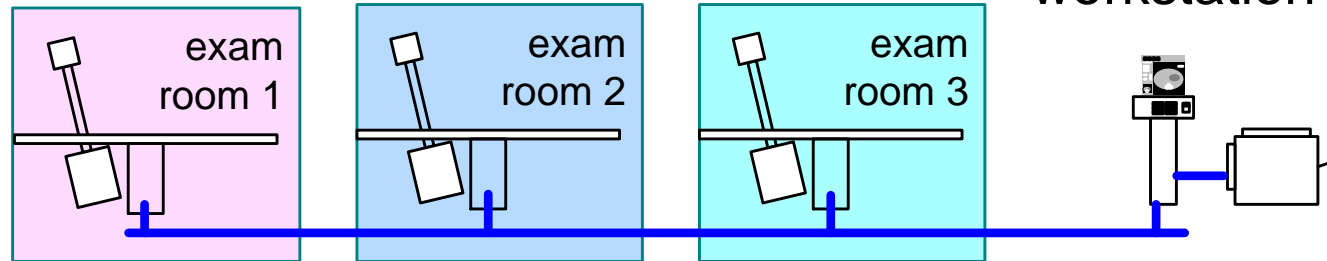
Example personal video recorder use case contents

typical use case(s)	worst case, exceptional, or change use case(s)
<p data-bbox="168 496 1012 544">interaction flow (functional aspects)</p> <ul data-bbox="219 555 960 804" style="list-style-type: none"><li data-bbox="219 555 703 596">select movie via directory<li data-bbox="219 608 432 649">start movie<li data-bbox="219 660 680 702">be able to pause or stop<li data-bbox="219 713 898 754">be able to skip forward or backward<li data-bbox="219 766 607 807">set recording quality	<p data-bbox="1131 496 1346 544">functional</p> <ul data-bbox="1182 555 1783 754" style="list-style-type: none"><li data-bbox="1182 555 1783 596">multiple inputs at the same time<li data-bbox="1182 608 1554 649">extreme long movie<li data-bbox="1182 660 1742 702">directory behaviour in case of<li data-bbox="1227 713 1756 754">extreme many short movies
<p data-bbox="168 852 875 963">performance and other qualities (non-functional aspects)</p> <ul data-bbox="219 975 934 1174" style="list-style-type: none"><li data-bbox="219 975 786 1016">response times for start / stop<li data-bbox="219 1027 934 1069">response times for directory browsing<li data-bbox="219 1080 674 1121">end-of-movie behaviour<li data-bbox="219 1133 927 1174">relation recording quality and storage	<p data-bbox="1131 852 1444 900">non-functional</p> <ul data-bbox="1182 911 1973 1158" style="list-style-type: none"><li data-bbox="1182 911 1823 952">response time with multiple inputs<li data-bbox="1182 963 1807 1005">image quality with multiple inputs<li data-bbox="1182 1016 1597 1058">insufficient free space<li data-bbox="1182 1069 1973 1110">response time with many directory entries<li data-bbox="1182 1121 1807 1163">replay quality while HQ recording

Example of Quantification of Typical Use Case

3 examination rooms connected to

1 medical imaging workstation + printer

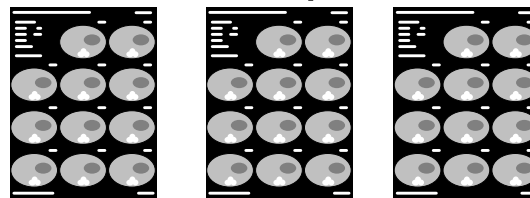


examination room: average 4 interleaved examinations / hour

image production: 20 1024^2 8 bit images per examination

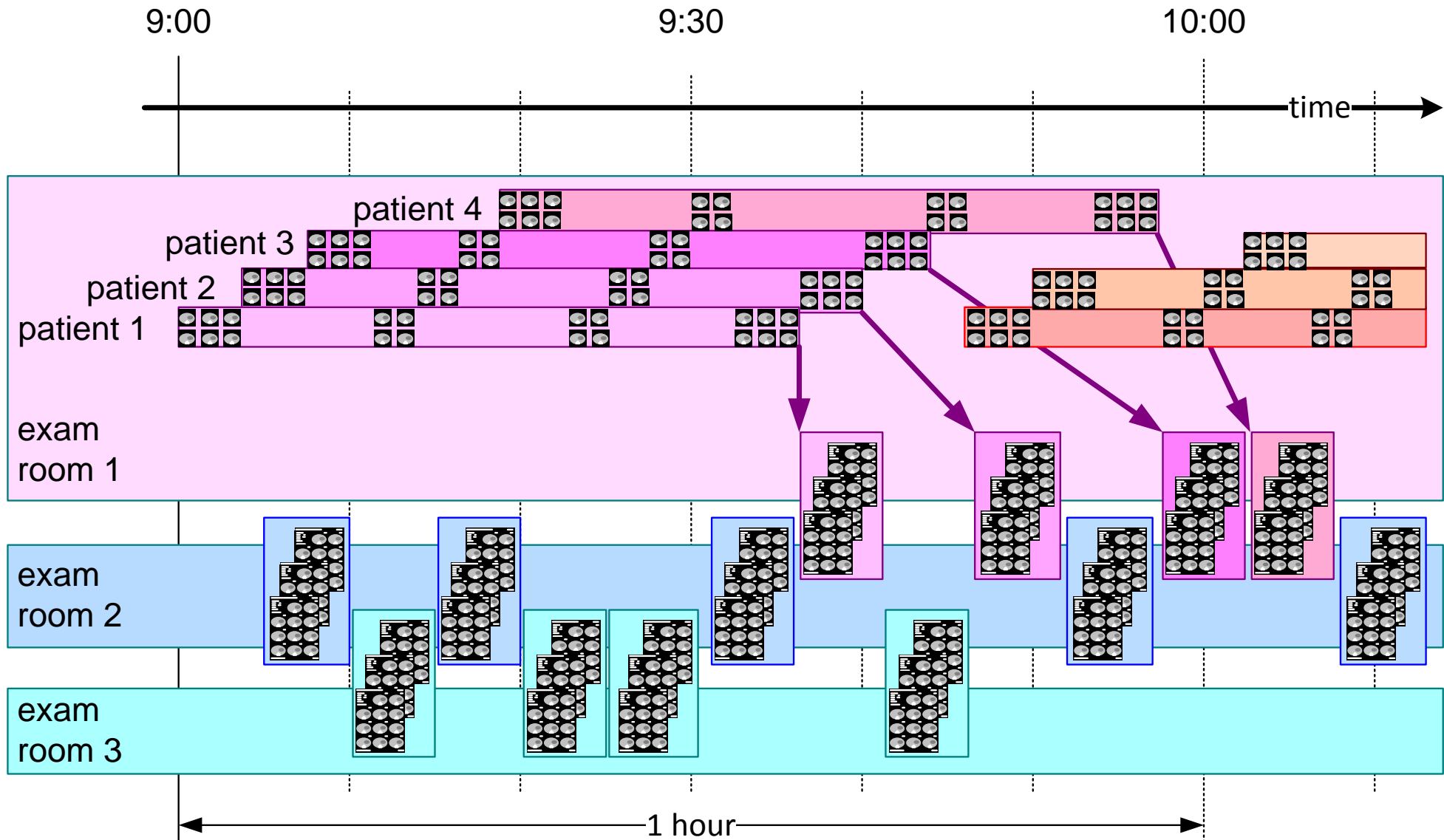


film production: 3 films of 4k*5k pixels each



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