[I02] know what we are protecting

[I02_p01] project

wim mees

introduction

learning objectives

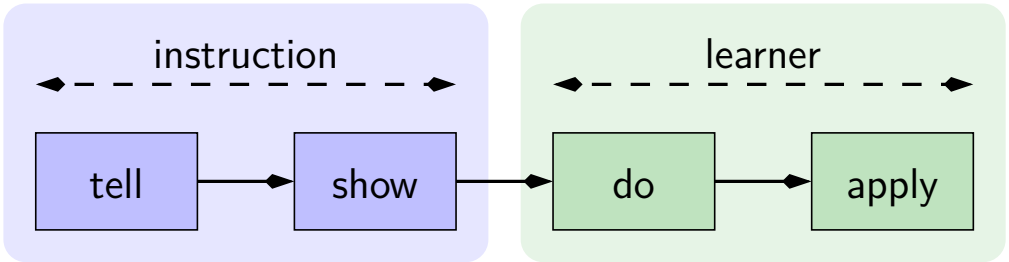

Figure 1: the anatomy of good instruction

- learn how to manage cybersecurity by
  - doing the exercises
  - applying the theory

remember the agencies

international level

- GAST: Global Agency for Ship Tracking
  ("mine")
- GASEO: Global Agency for Satellite Earth Observation
  ("yours")

national level

- CoGuaR: Coast Guard Radar station
- CoWSA: Coastal Waters Surveillance Agency

and the general concept

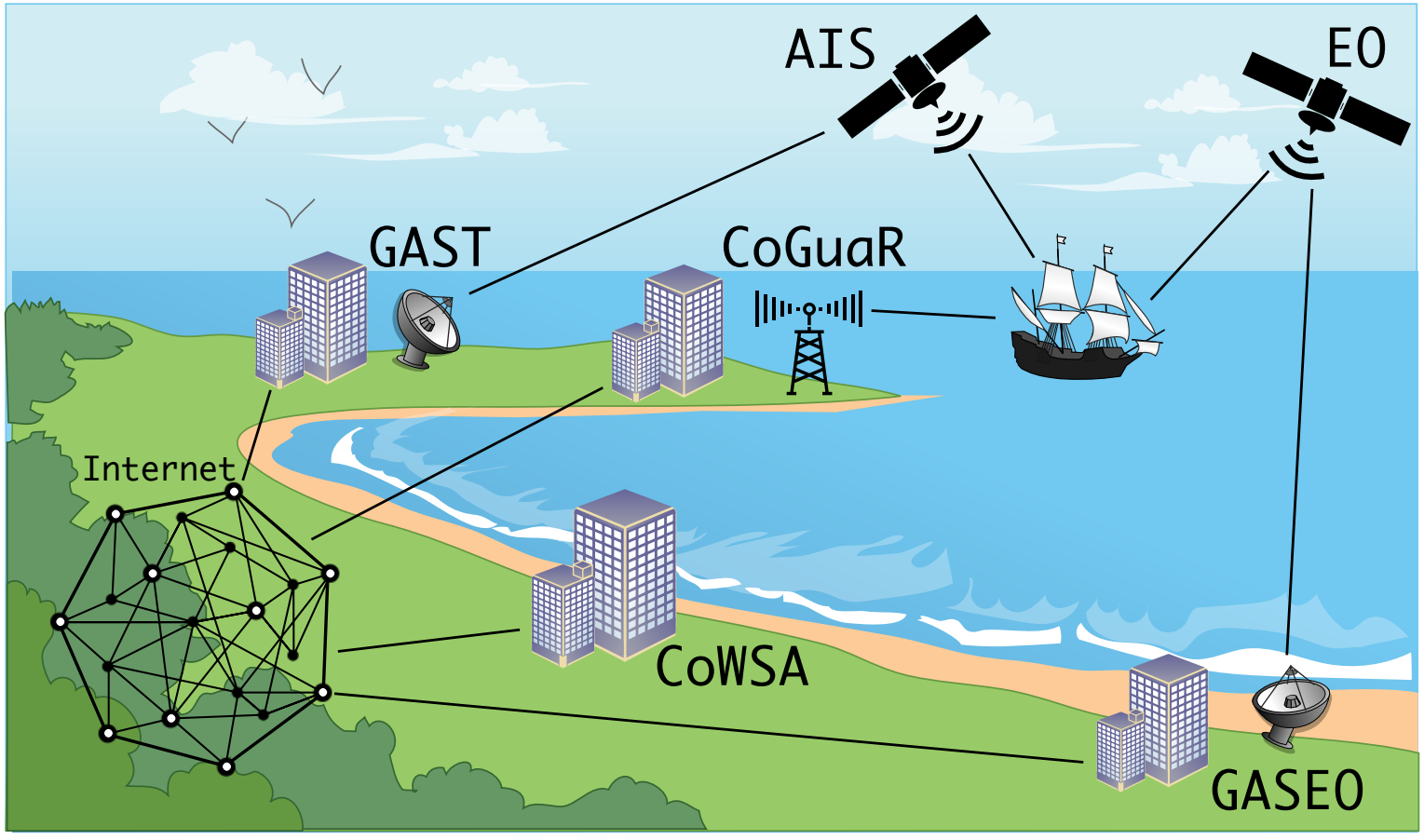

Figure 2: interactions between different organizations

ship tracking

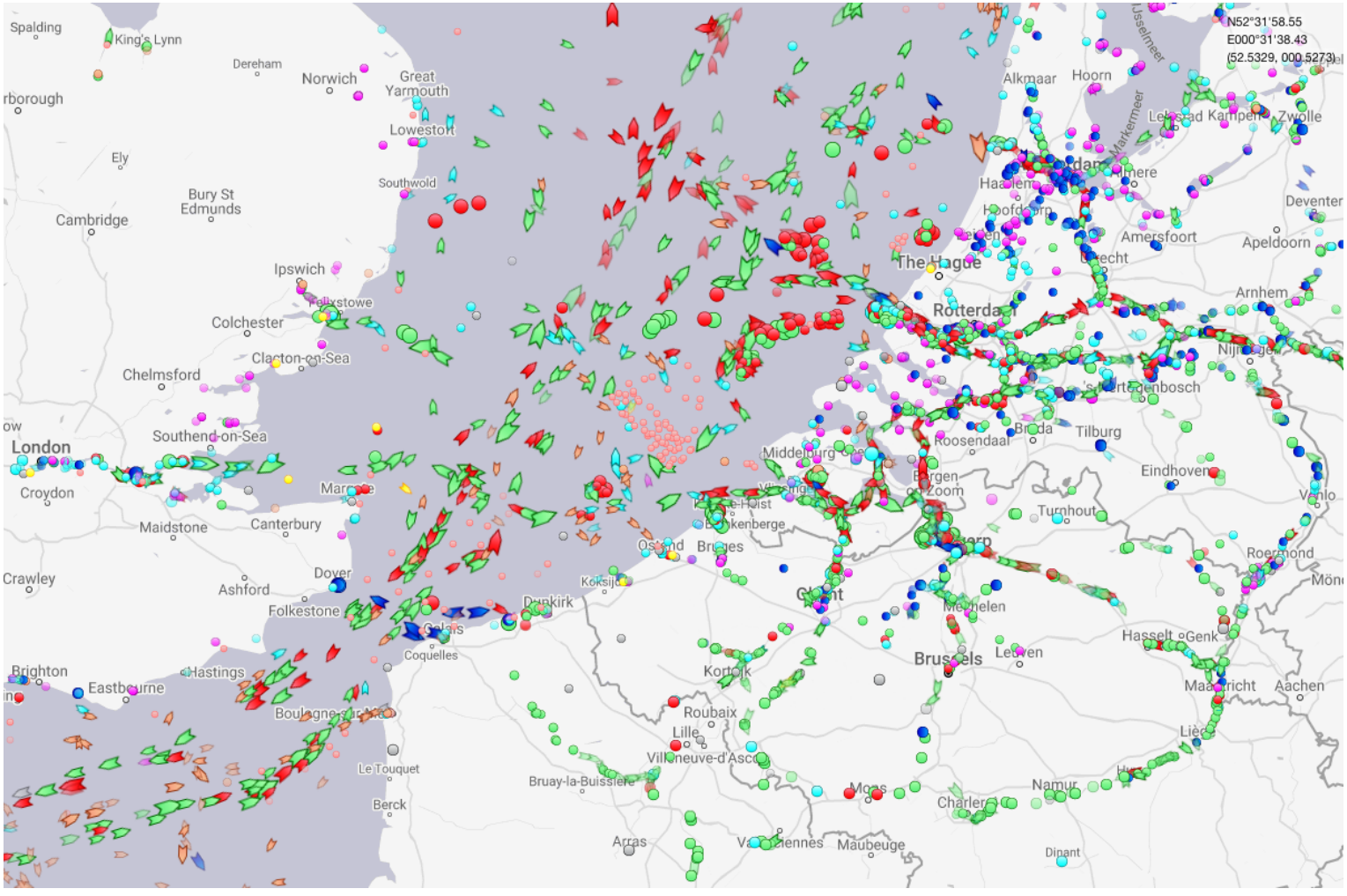

Figure 3: https://www.marinetraffic.com/

ship tracking

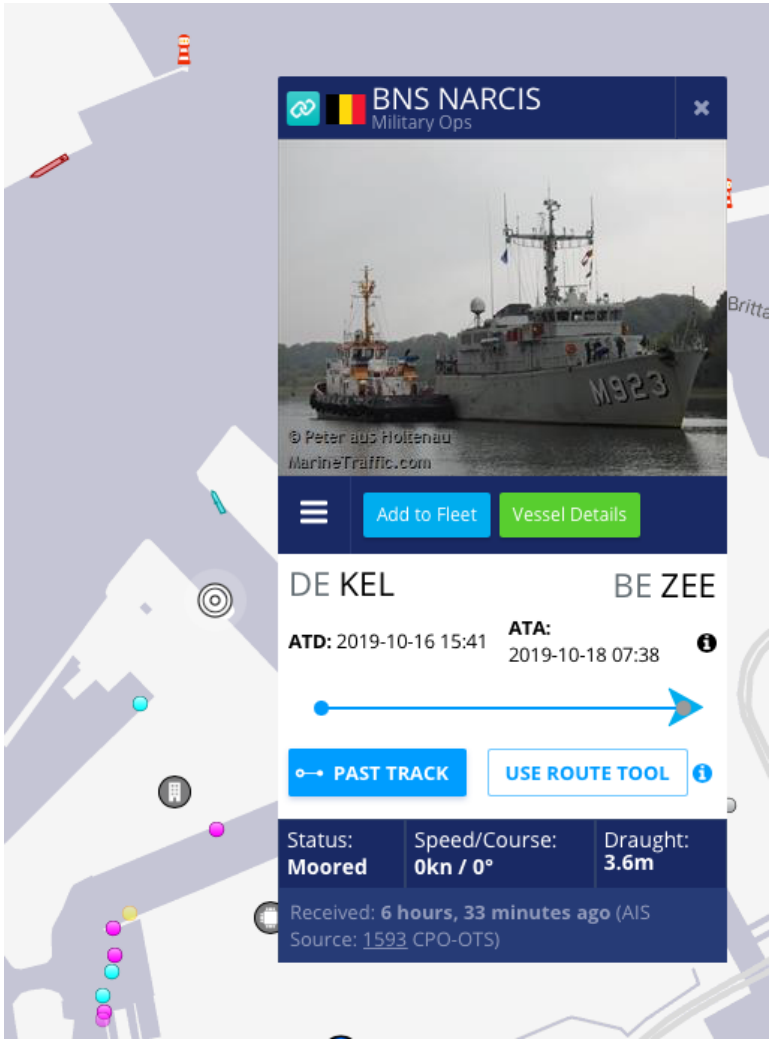

Figure 4: (cont'd)

earth observation

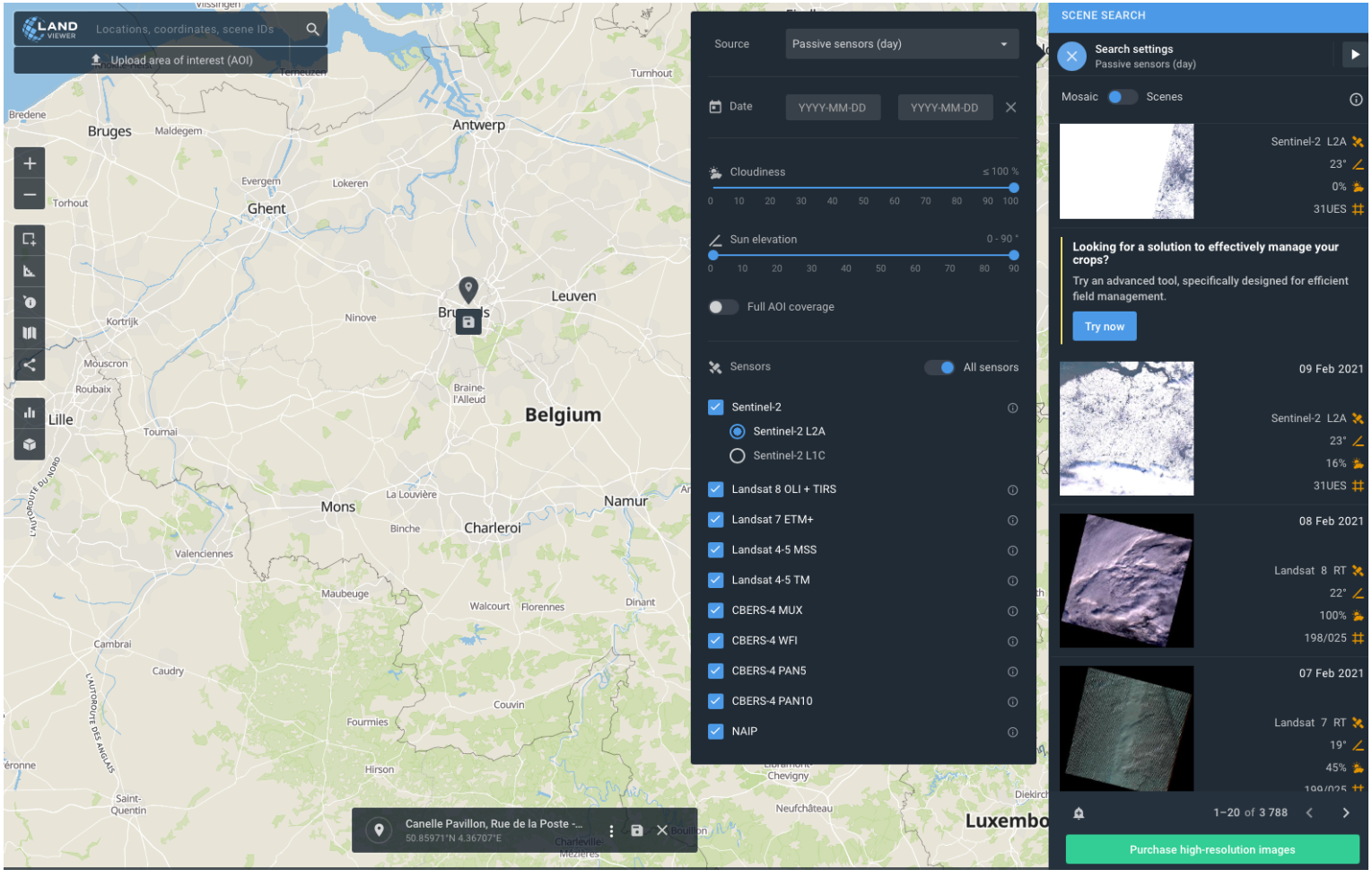

Figure 5: https://eos.com/landviewer/

business processes

GAST

- *AIS satellite receives AIS data that is broadcast by a ship*
- *AIS satellite sends AIS data in a protected way to GAST*
- processed AIS data is made available in a protected form on a public website and via a web services interface (machine-to-machine)
- general public performs a basic search on this data
- client (paying customer) searches for specific data
- client system subscribes to a data feed
- GAST streams the data to registered subscriber systems
- ...

(italic: out of scope for this project)

business processes (cont'd)

GASEO

- *EO satellite sends high-resolution images (= low grade classified data) to GASEO*
- client registers as a customer, authorized government organization is privileged customer
- customer performs data search on protected website
- customer subscribes to data feed of images for specific region
- GASEO sends images to subscriber for subscribed region
- regular customer gets unclass low-resolution images
- privileged customer gets classified high-resolution images
- ...

(italic: out of scope for this project)

GAST use cases

use cases

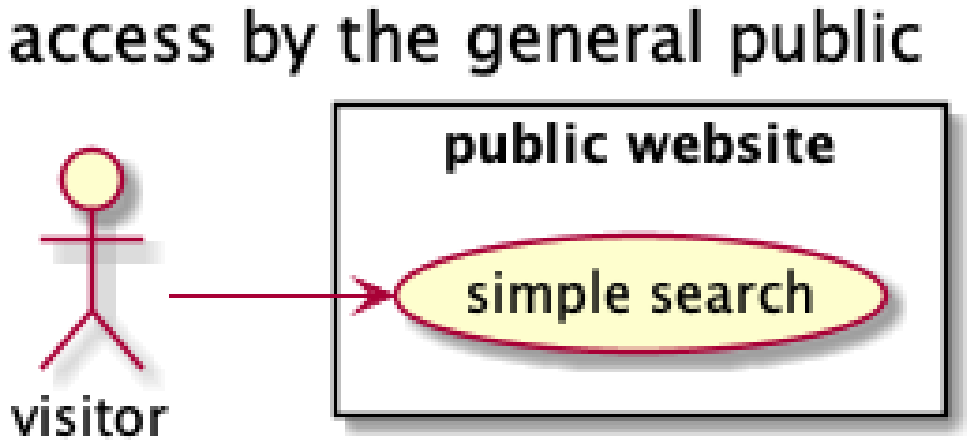

Figure 6: use case 1

use cases

use case 1 description

- A visitor can visit the website and perform a simple search without having to register.
- This simple search only allows for a limited number of search parameters.
- The result will be a low resolution plot of one or more ship tracks, with a watermark indicating that it was a free search.
- A visitor can only perform a limited number of searches per hour (“rate limiting”).

use cases

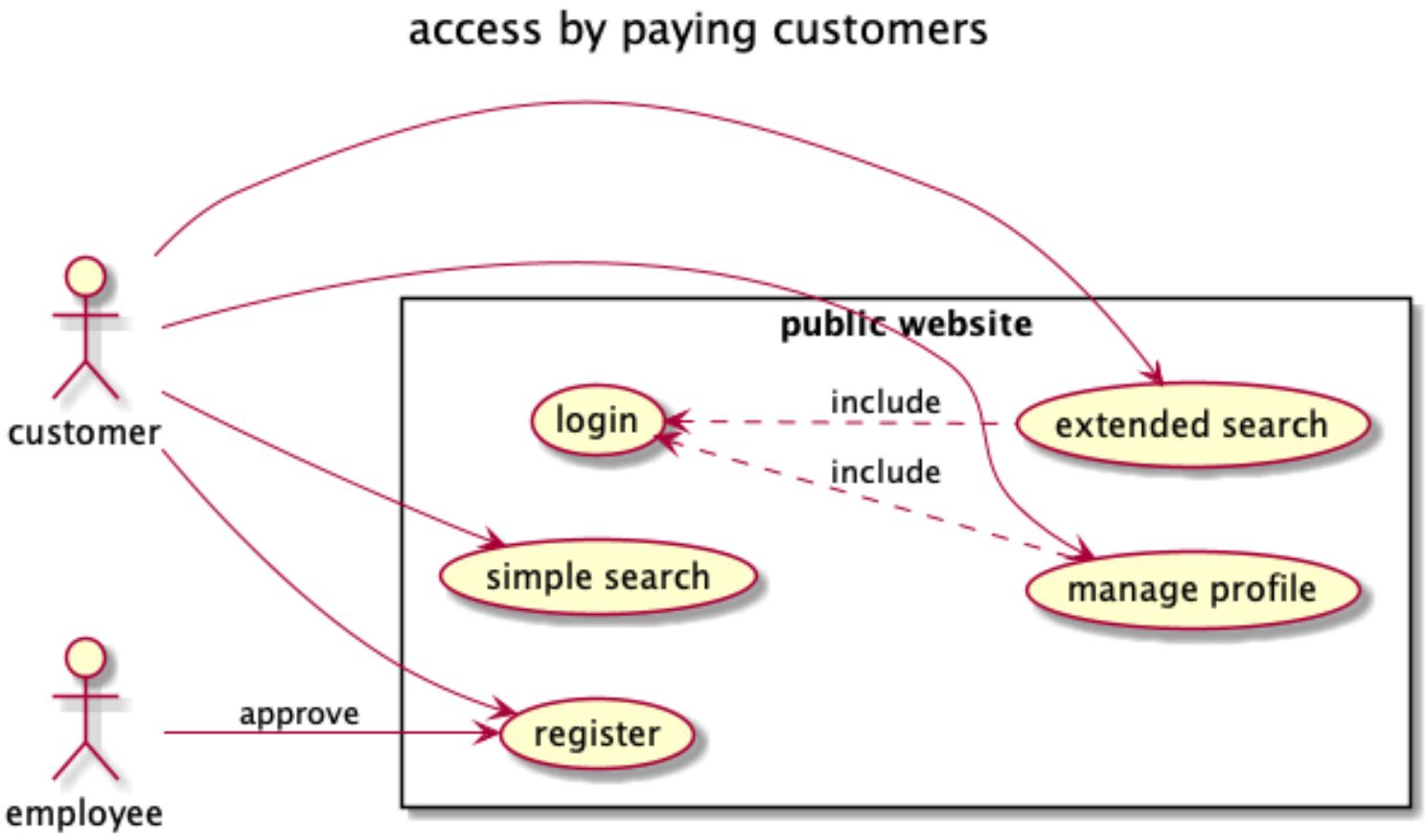

Figure 7: use case 2

use cases

use case 2 description

- A visitor can register on the website, in order to become a paying customer.
- The visitor will have to validate his email address.
- Once this has been done, the registration must be manually validated by an employee, who will check the provided information before the customer can get access to the extended search functionality.
- A customer can - just like an anonymous visitor - still use the simple search functionality.
- A customer can however also use the extended search functionality, once he is logged in.
- A customer that has logged in, can manage his profile, for instance to update his personal data.

use cases

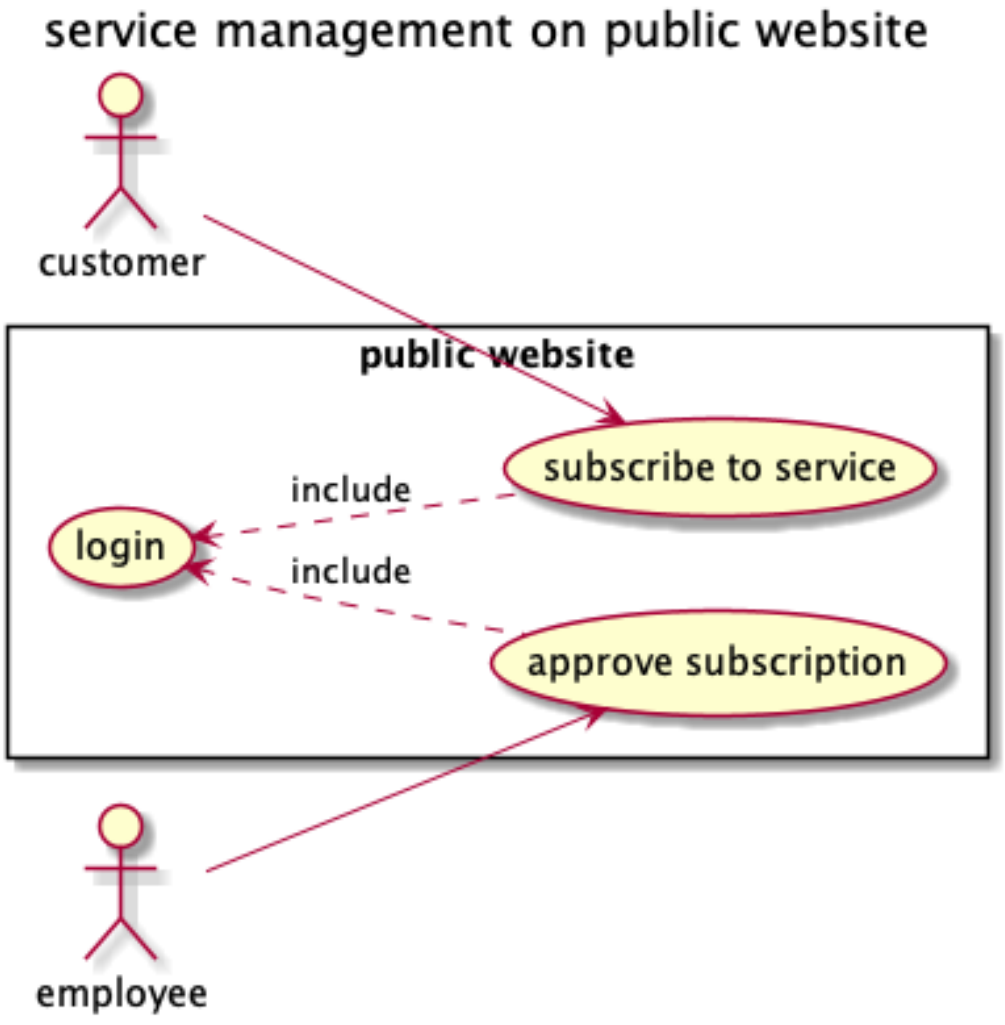

Figure 8: use case 3

use cases

use case 3 description

- A registered customer can subscribe to specific (paying) services, for this he has to log in first.
- His service request will have to be approved by an employee before they will be applied at a technical level.
- An employee will verify whether the customer has the privilege level to access the requested types of information, and whether it fits in the customer's commercial service plan.

use cases

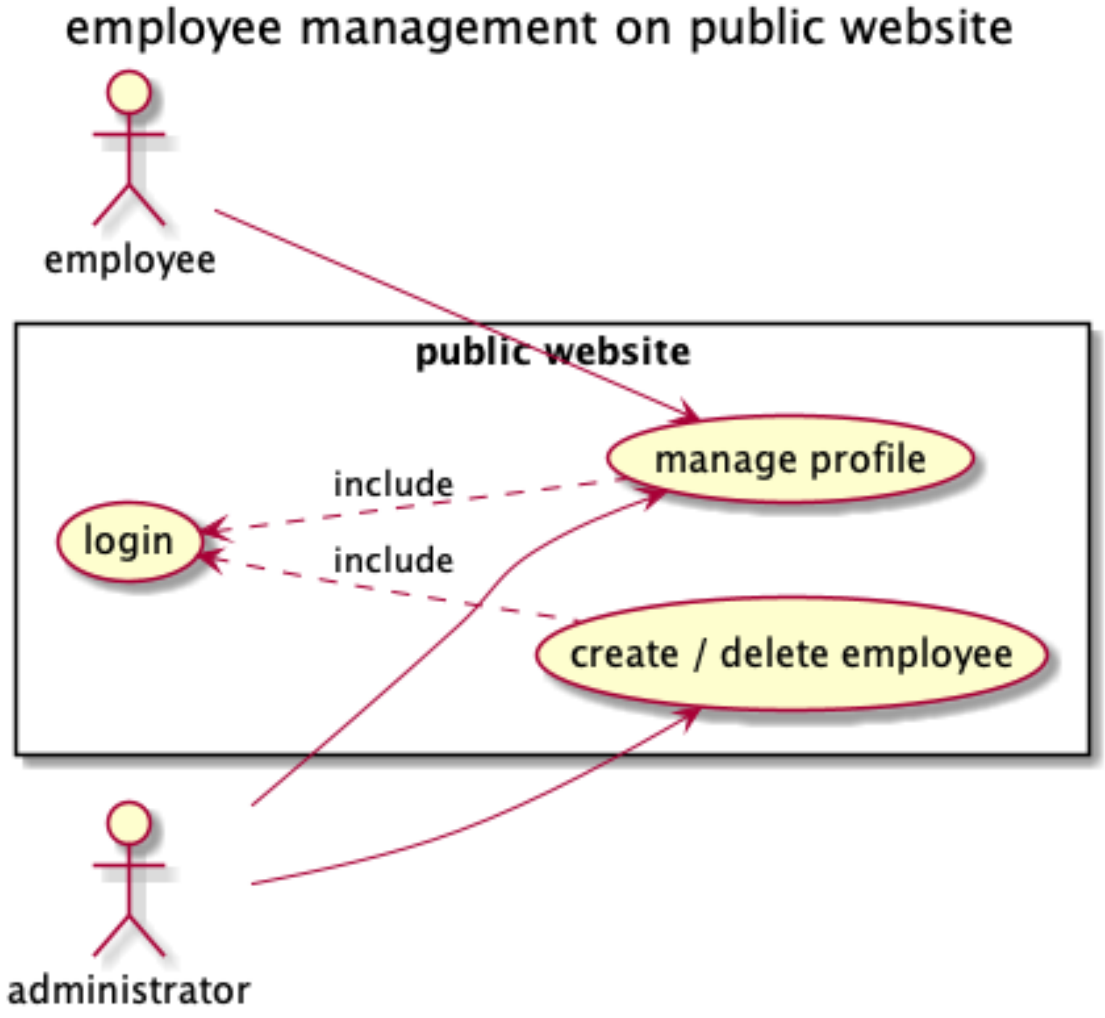

Figure 9: use case 4

use cases

use case 4 description

- Only an administrator can create or delete an employee.
- An employee can manage his own profile with regard to his personal information.
- Changes to the access rights of an employee must however be performed by the administrator.
- An administrator can obviously manage the personal information in his own profile as well.

use cases

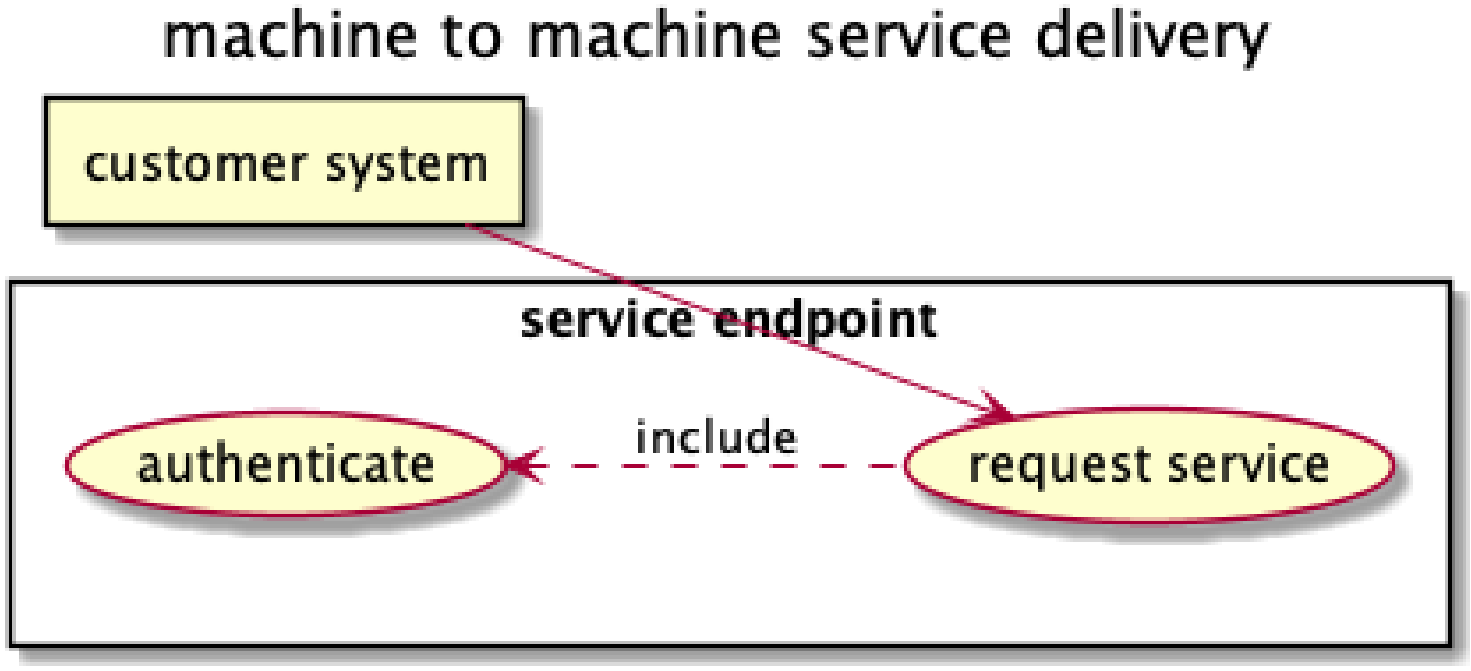

Figure 10: use case 5

use cases

use case 5 description

- A customer system can request a service from the (machine-to-machine) web service interface of the agency.
- This access requires the customer system to authenticate.
- The service endpoint will verify whether this specific customer is allowed to consume the requested service.
- When allowed, the requested data is streamed to the customer system.

GAST activity diagrams

use case

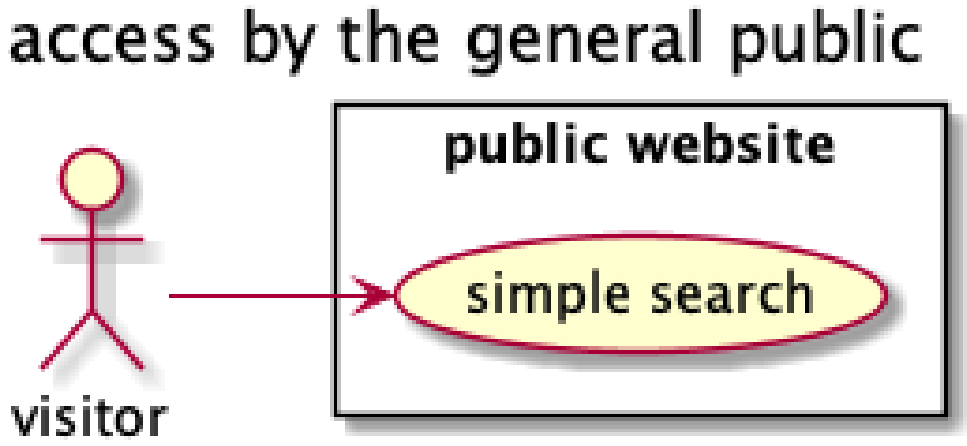

Figure 11: use case 1

activity diagram

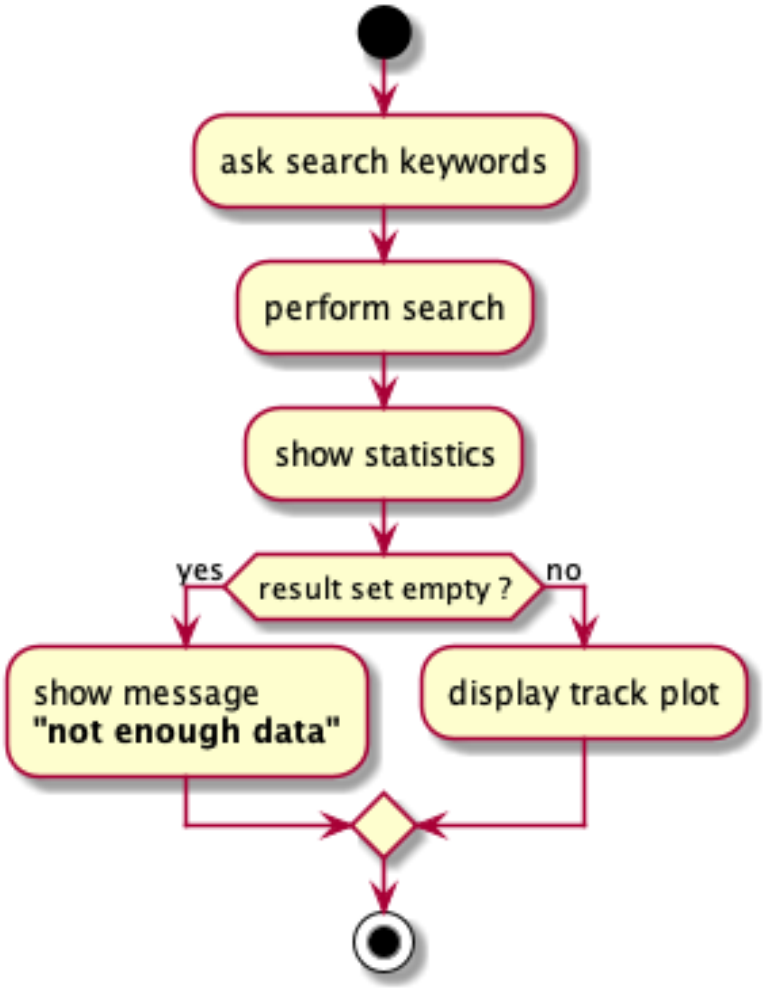

Figure 12: activity diagram 1 for use case *"simple search"*

use case

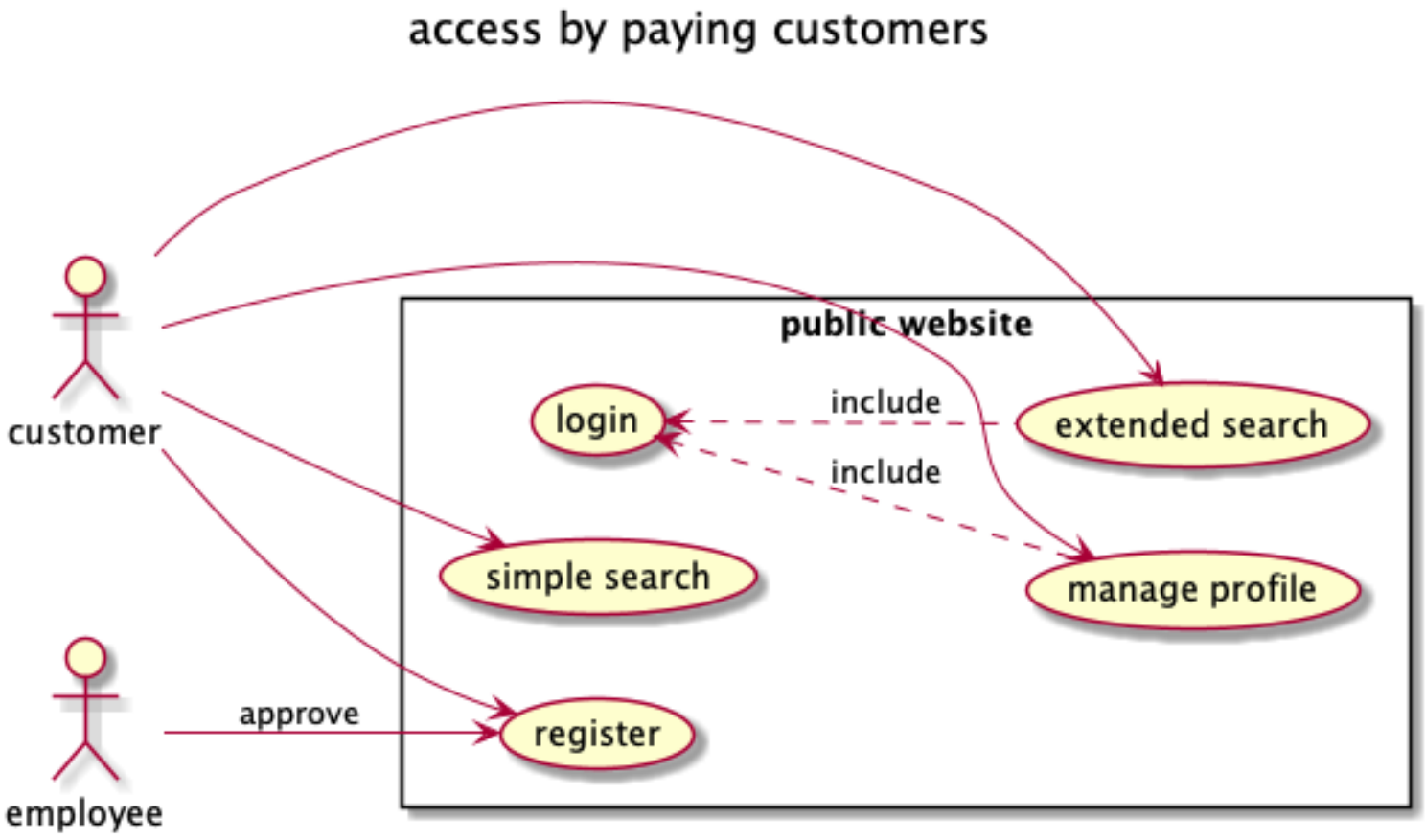

Figure 13: use case 2

activity diagram

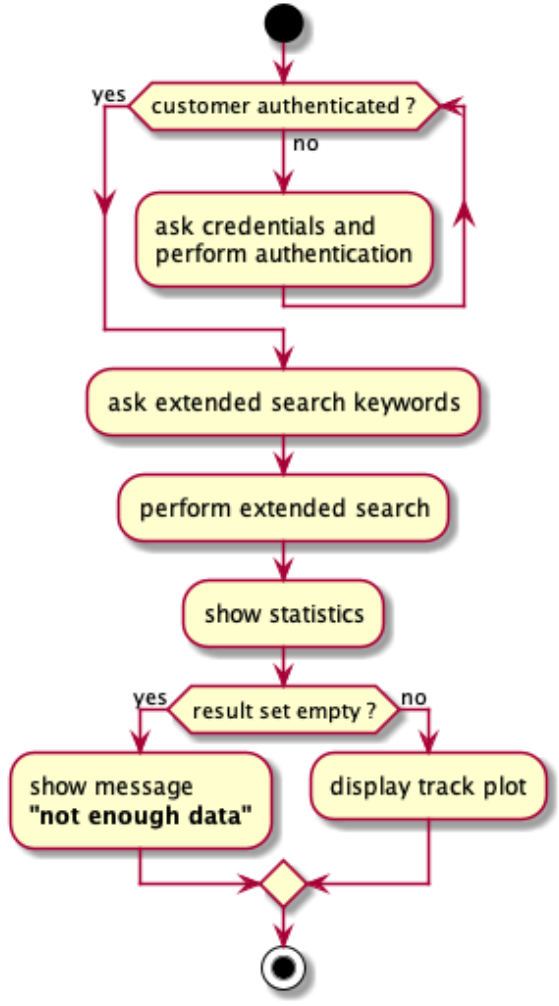

Figure 14: activity diagram 2 for use case *"extended search"*

activity diagram

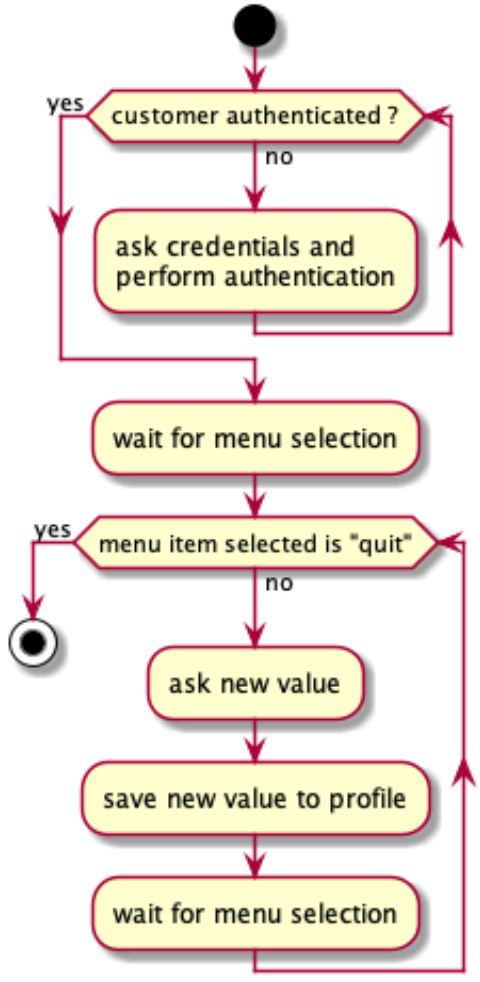

Figure 15: activity diagram 3 for use case *"manage profile"*

activity diagram

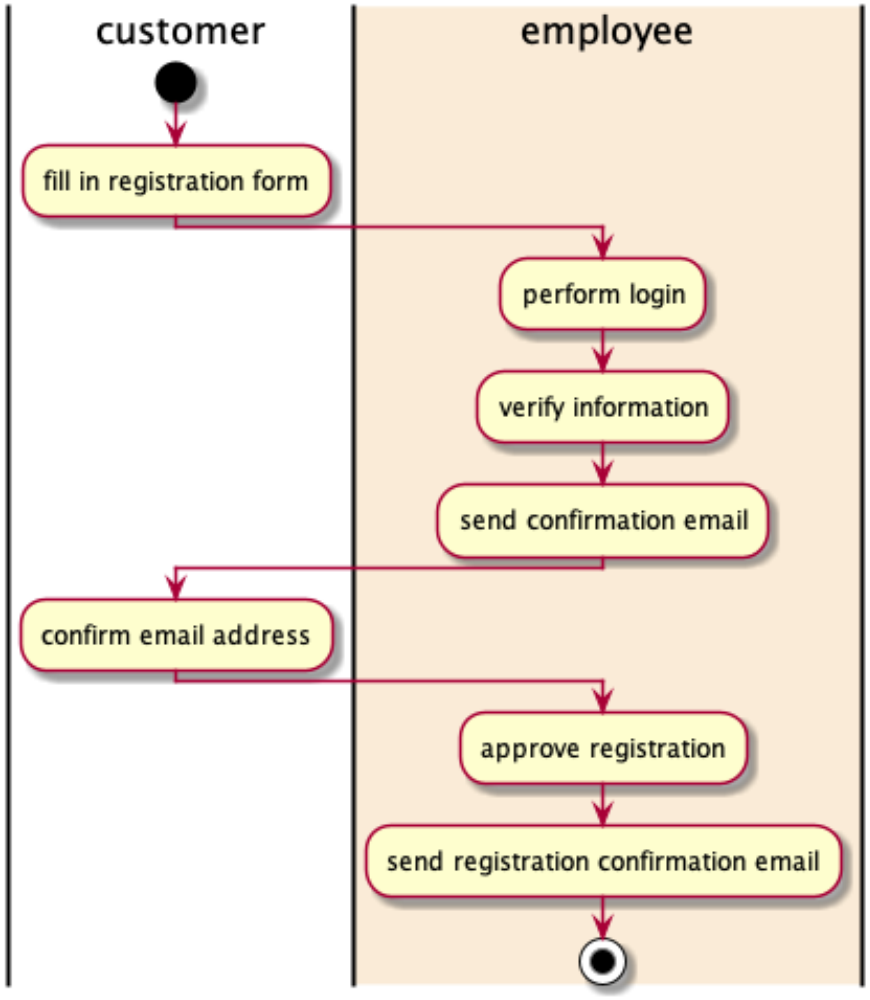

Figure 16: activity diagram 4 for use case *"register"*

use case

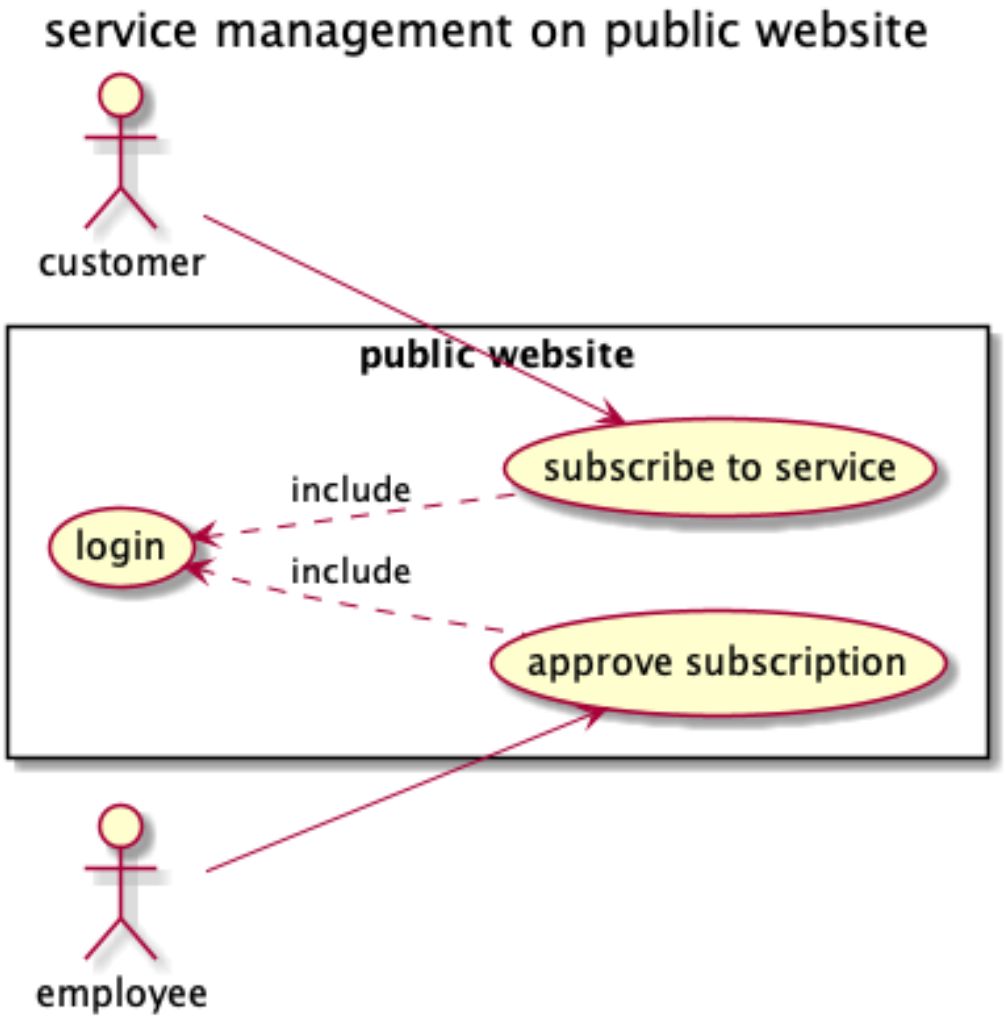

Figure 17: use case 3

activity diagram

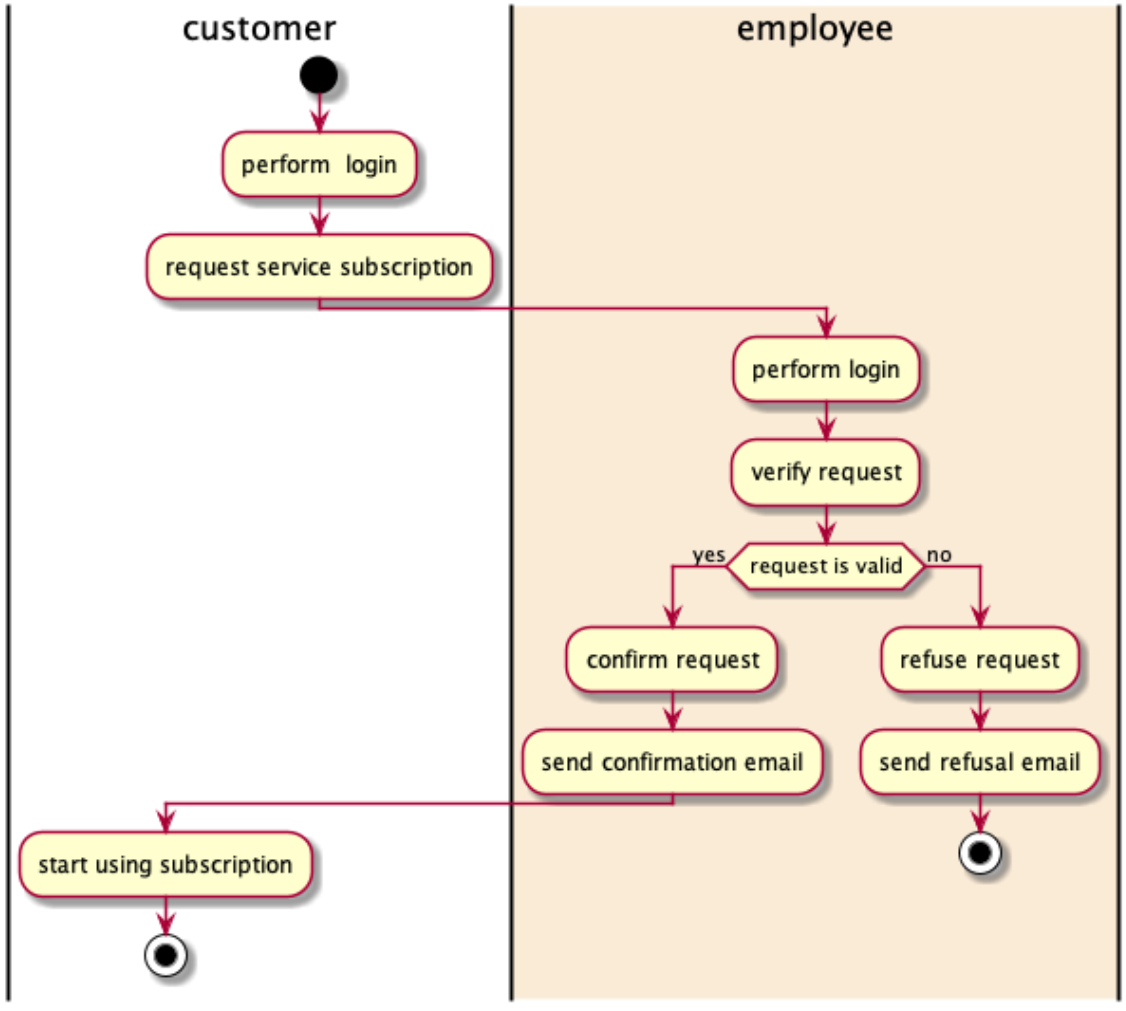

Figure 18: activity diagram 5

GAST data flow diagrams

data flow diagram

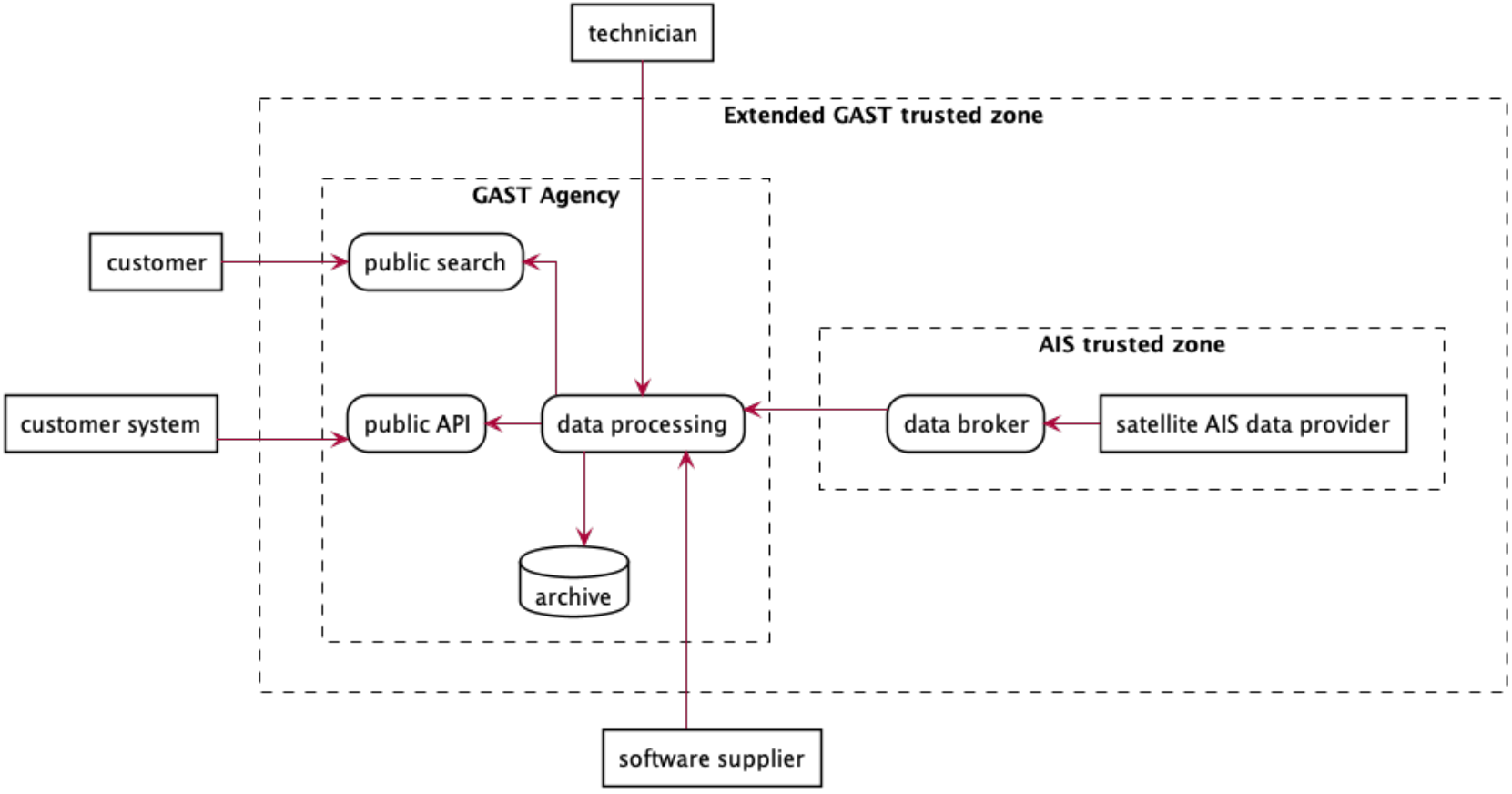

Figure 19: data flow diagram 1

activity diagram

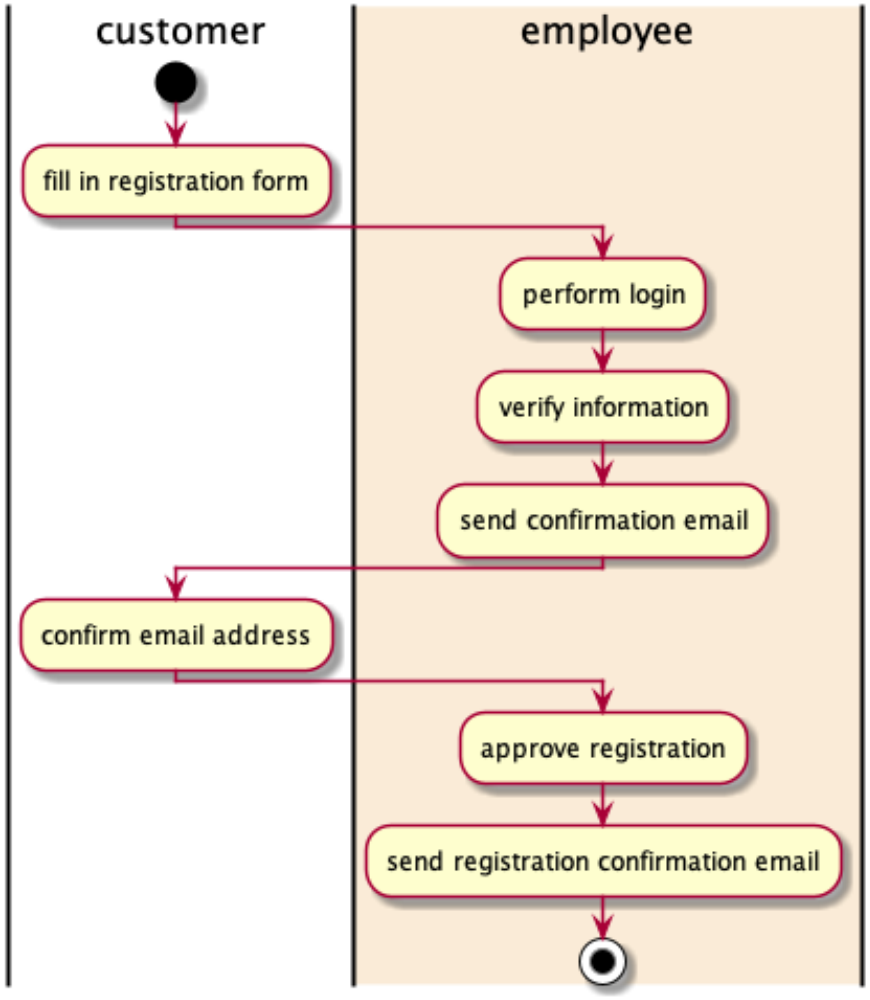

Figure 20: activity diagram for use case *"register"*

data flow diagram

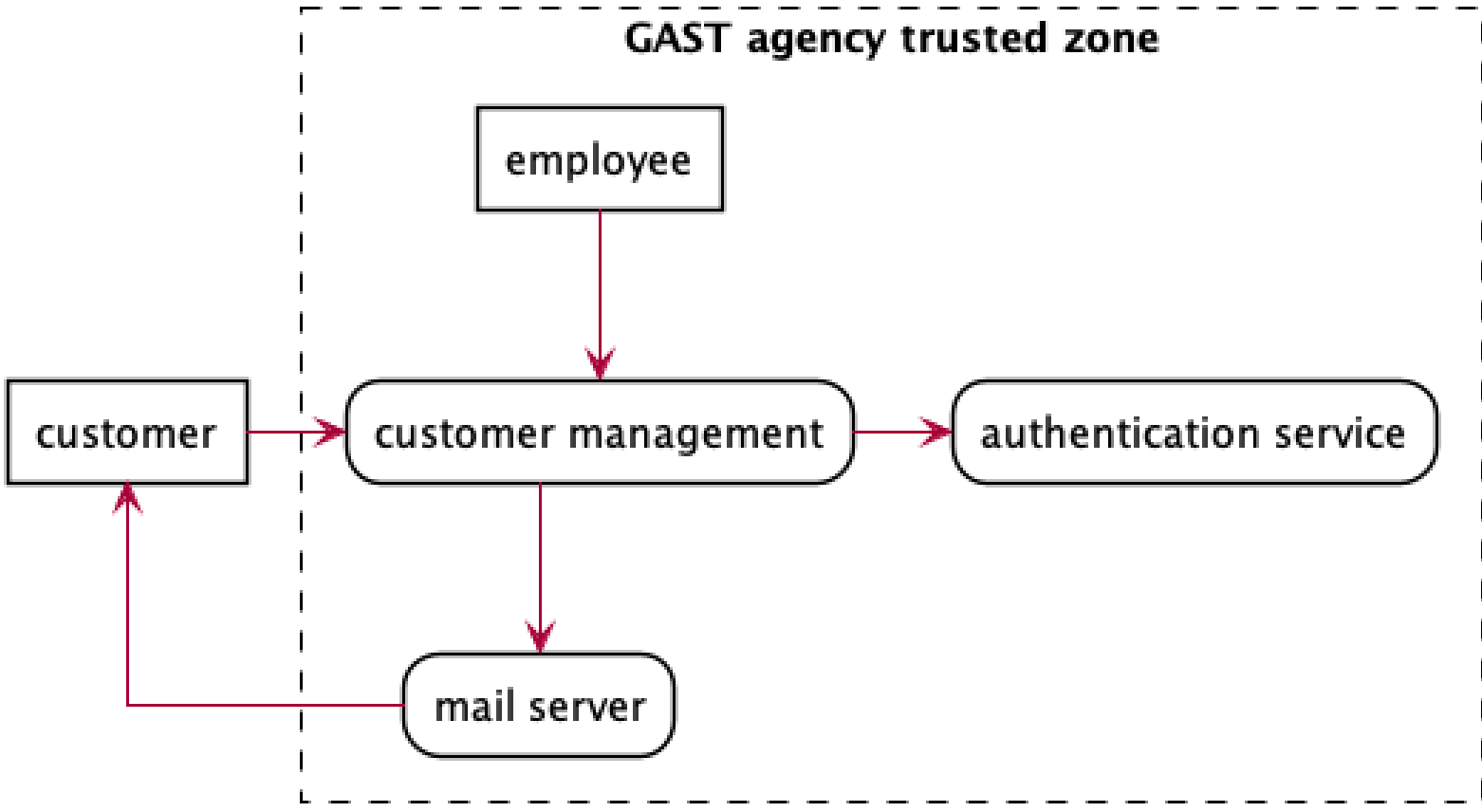

Figure 21: data flow diagram 2 for *"register"*

activity diagram

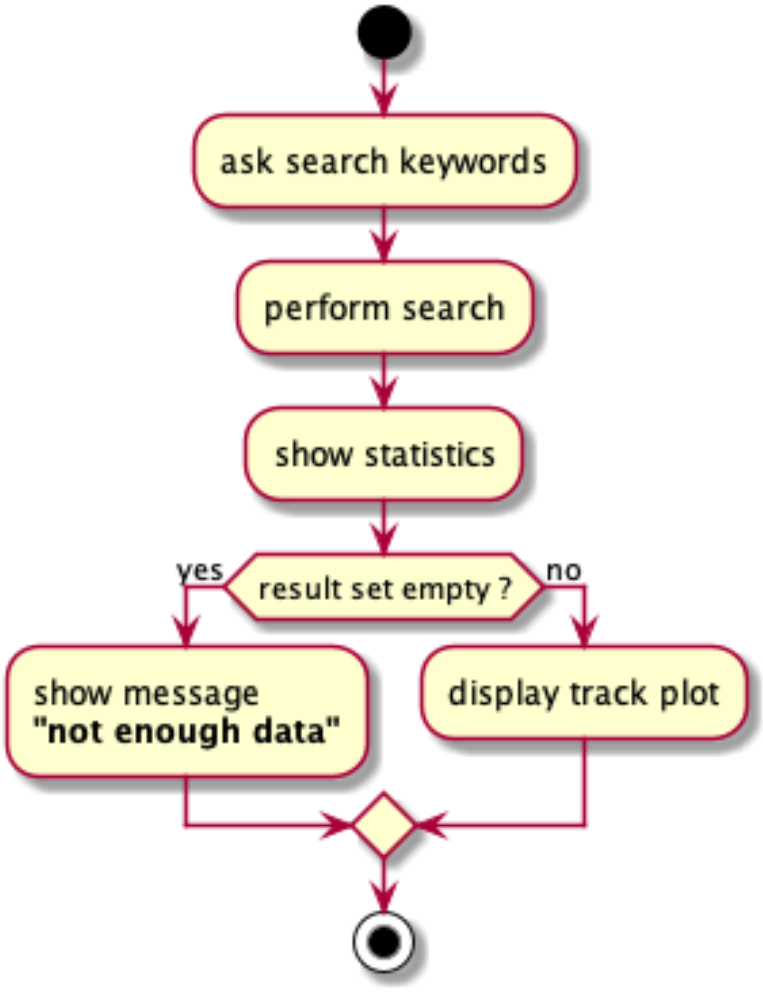

Figure 22: activity diagram for use case *"simple search"*

data flow diagram

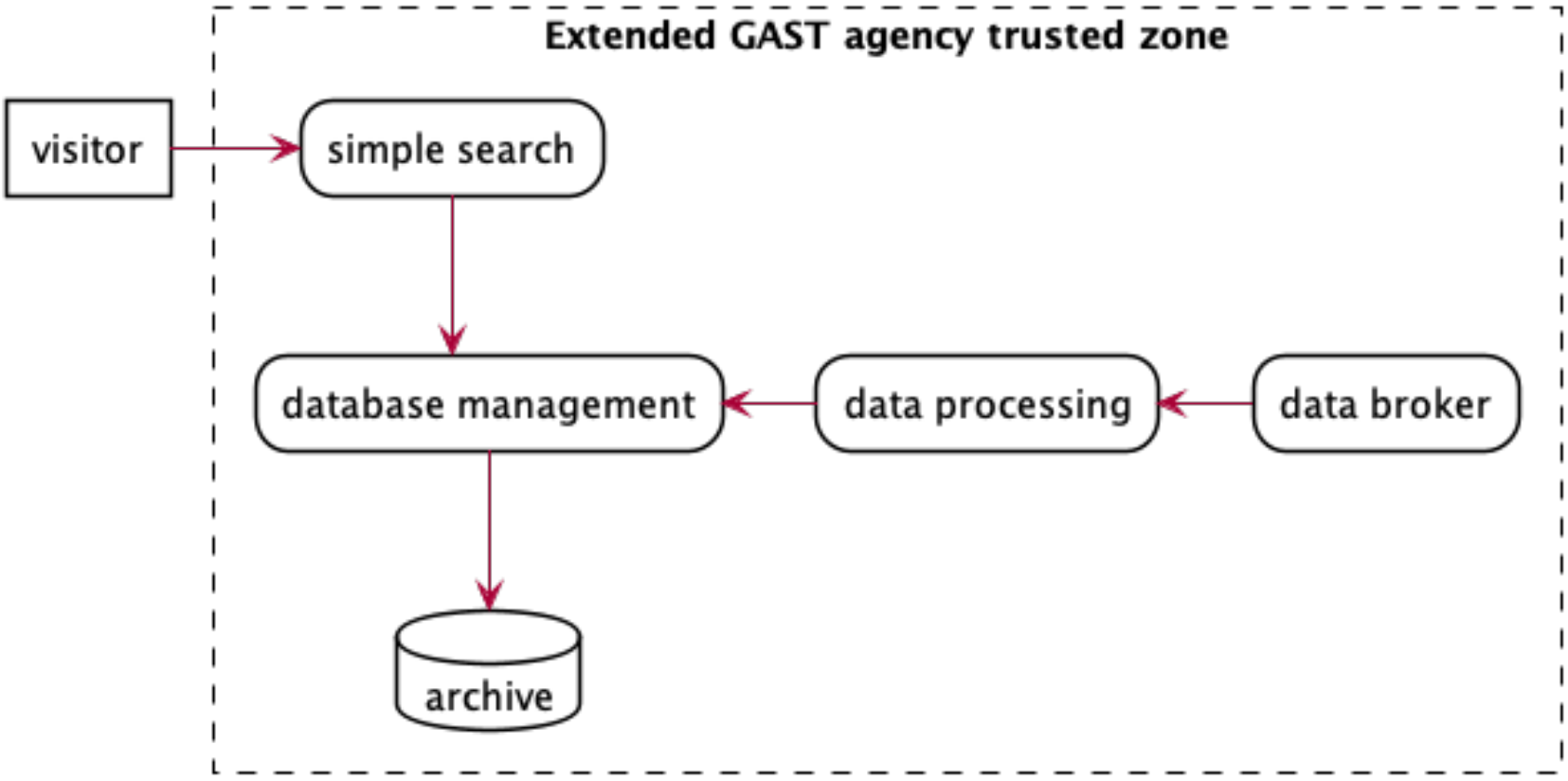

Figure 23: data flow diagram 3 for *"simple search"*

activity diagram

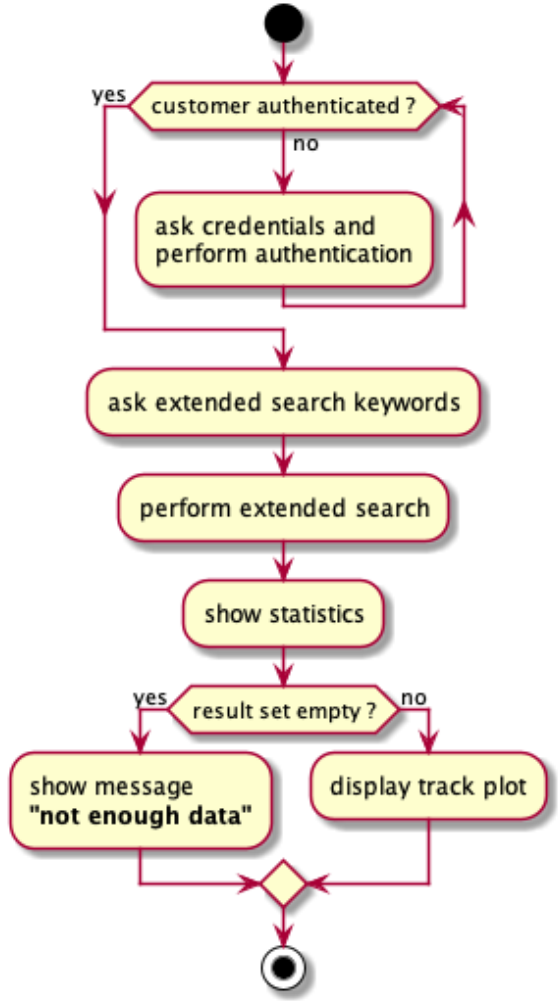

Figure 24: activity diagram for use case *"extended search"*

data flow diagram

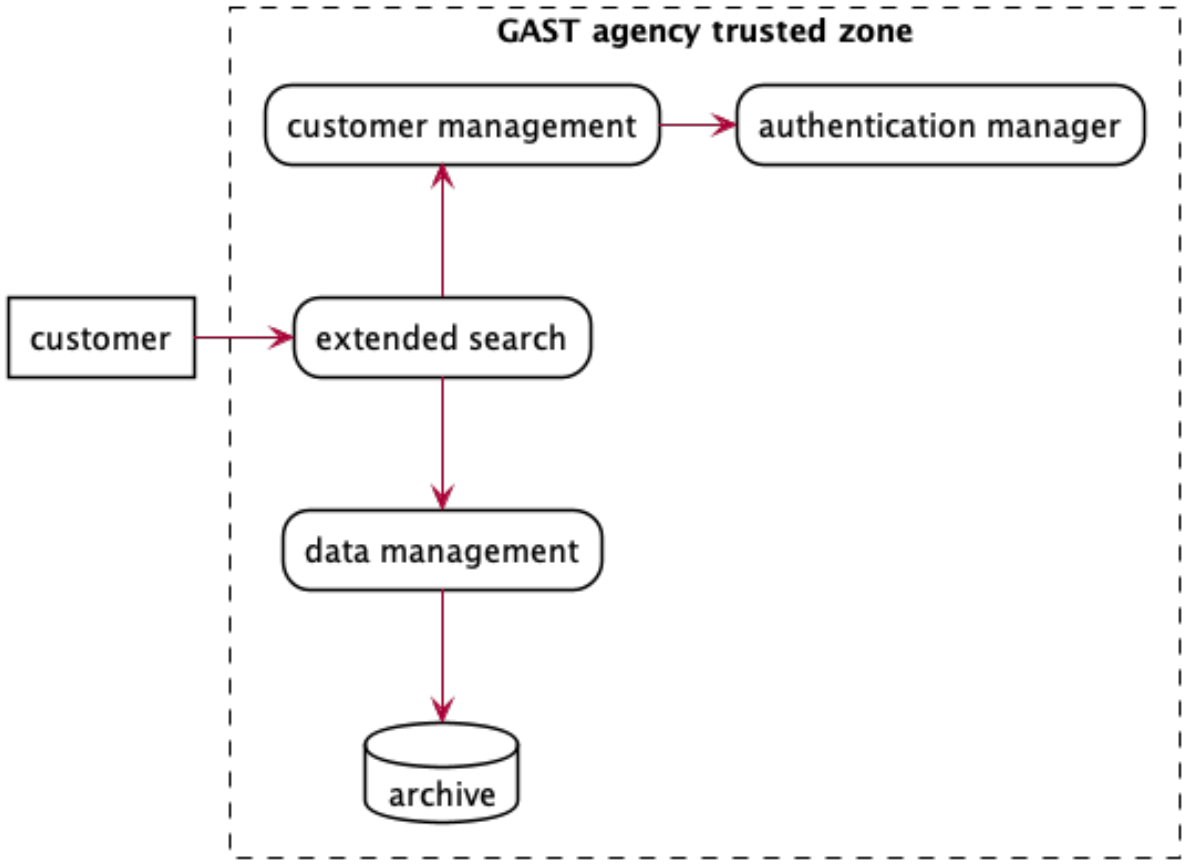

Figure 25: data flow diagram 4 for *"extended search"*

GAST other diagrams

network diagram

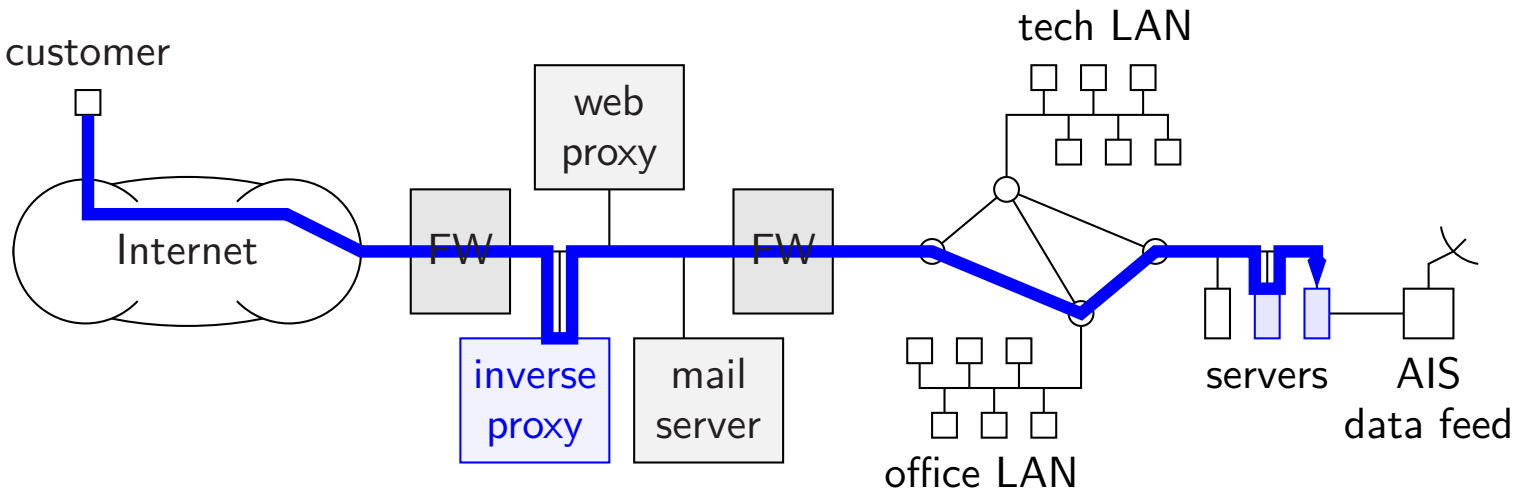

Figure 26: infrastructure for DFD 1

conclusions

what is expected from you

your project

- start writing your report
  - diagrams
  - text to explain the diagrams
- content to produce after this lecture:
  - context for GASEO (1 page)
  - business processes (BPMN/UML & DFD) (2-3 pages)
  - current technology/infrastructure architecture (1 page)
- **GASEO is a fictitious organization,**
  “it’s your baby”,
  make your own choices

conclusions

Figure 27: questions or comments ?