

Facade

What is a “facade”?

- From Merriam-Webster Online
 - *1 : the front of a building ; also : any face of a building given special architectural treatment <a museum's east facade>*
 - *2 : a false, superficial, or artificial appearance or effect*

- **Context:**

- ♦ Often, an application contains several complex packages.
- ♦ A programmer working with such packages has to manipulate many different classes

- **Problem:**

- ♦ How do you **simplify** the view that programmers have of a complex package?

- **Forces:**

- ♦ It is hard for a programmer to understand and use an entire subsystem
- ♦ If several different application classes call methods of the complex package, then any modifications made to the package will necessitate a complete review of all these classes.

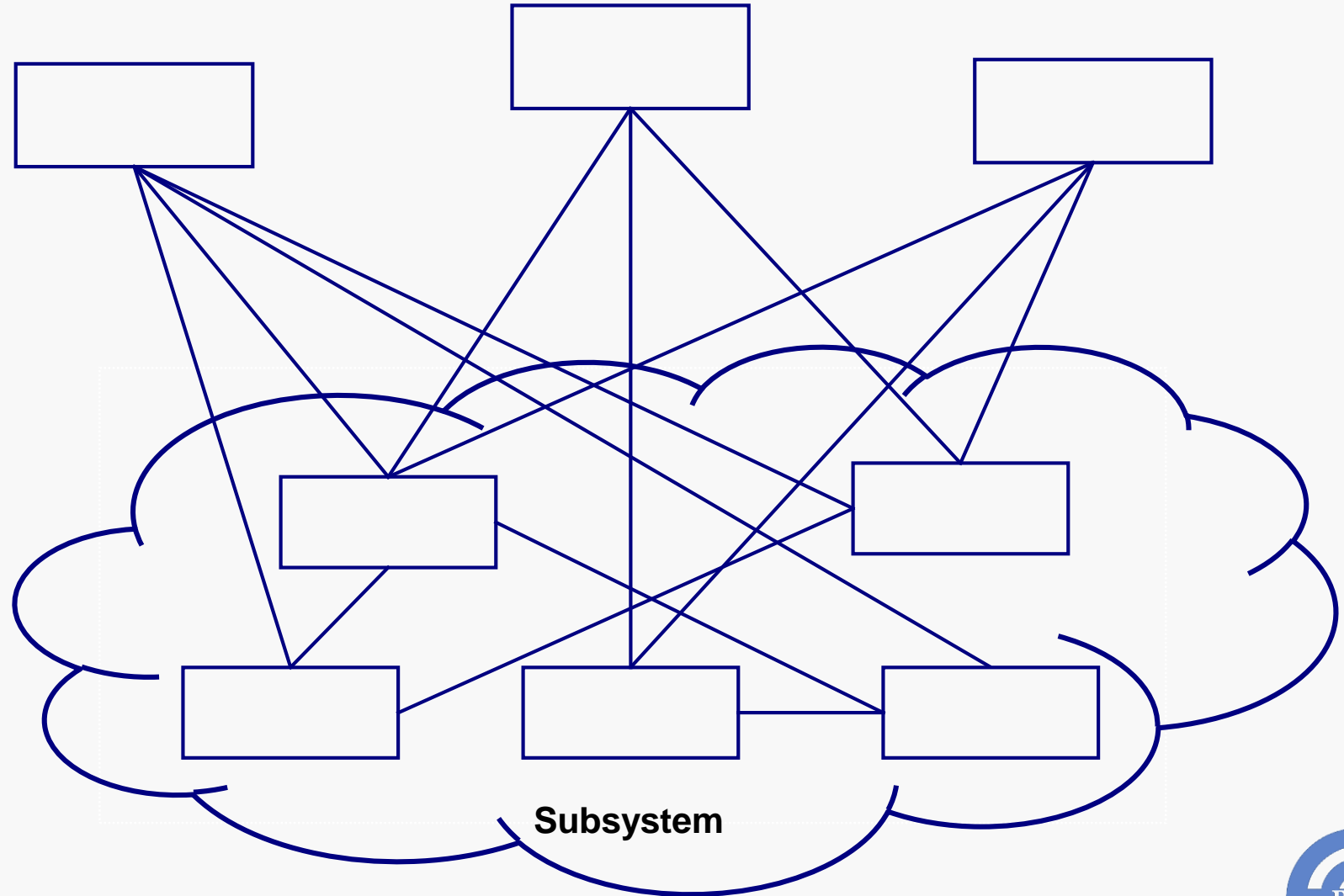
Facade Intent

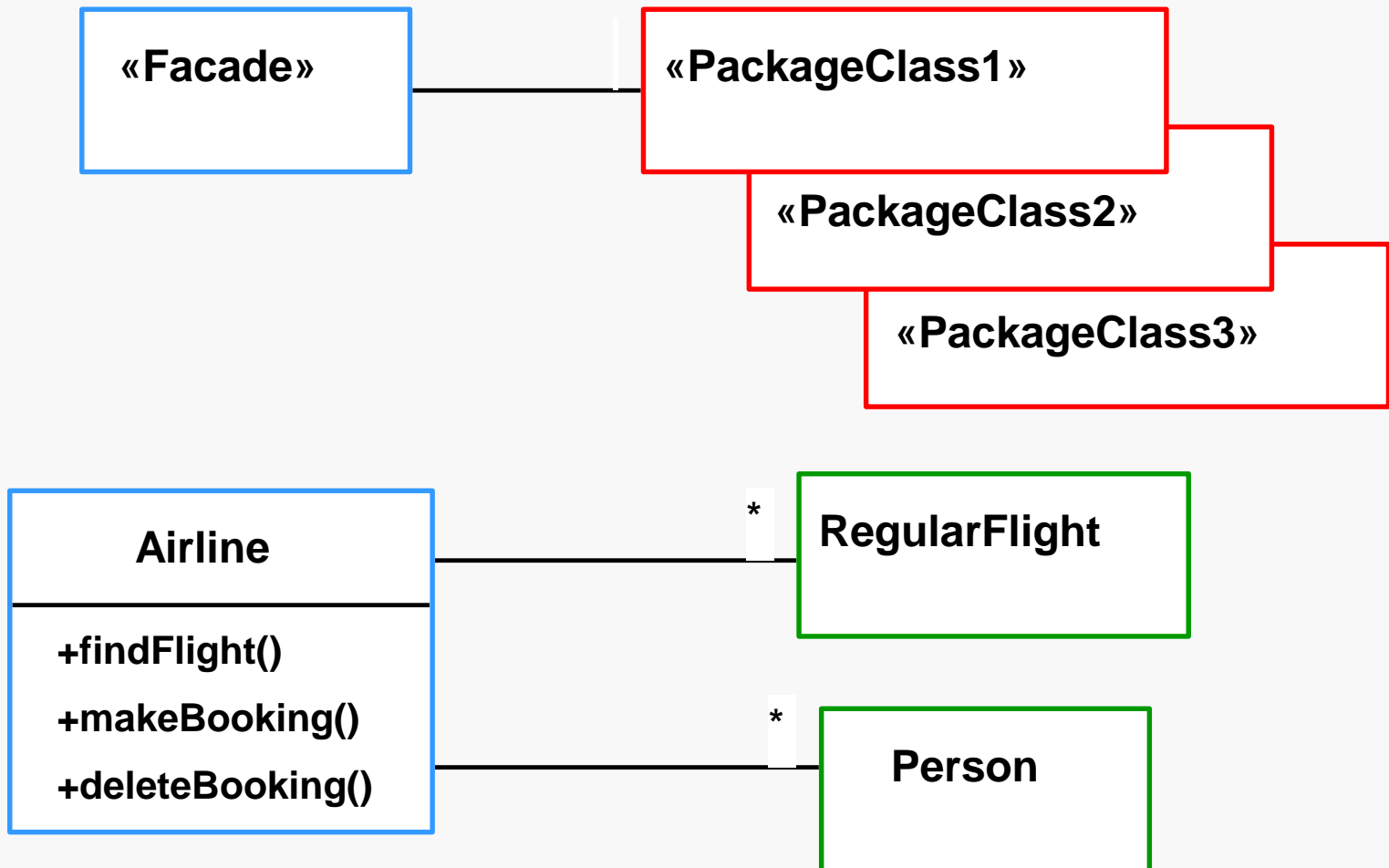
Provide a unified interface to a set of interfaces in a subsystem. Façade defines a higher-level interface that makes the subsystem easier to use.

Category?

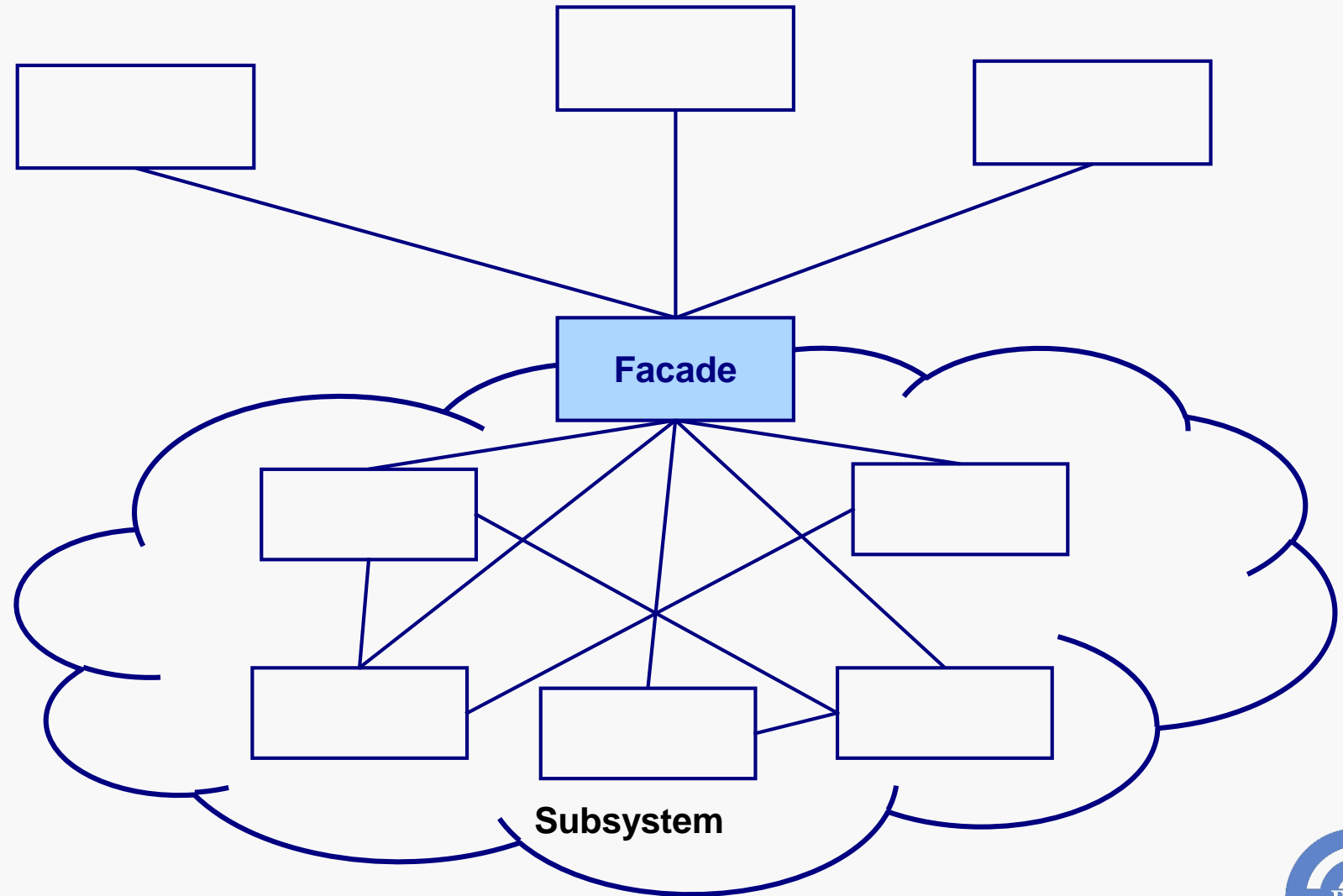
(Structural)

Clients often need detailed knowledge of a subsystem to obtain the needed services.





A Façade can make it easier for clients to obtain the services that are needed.



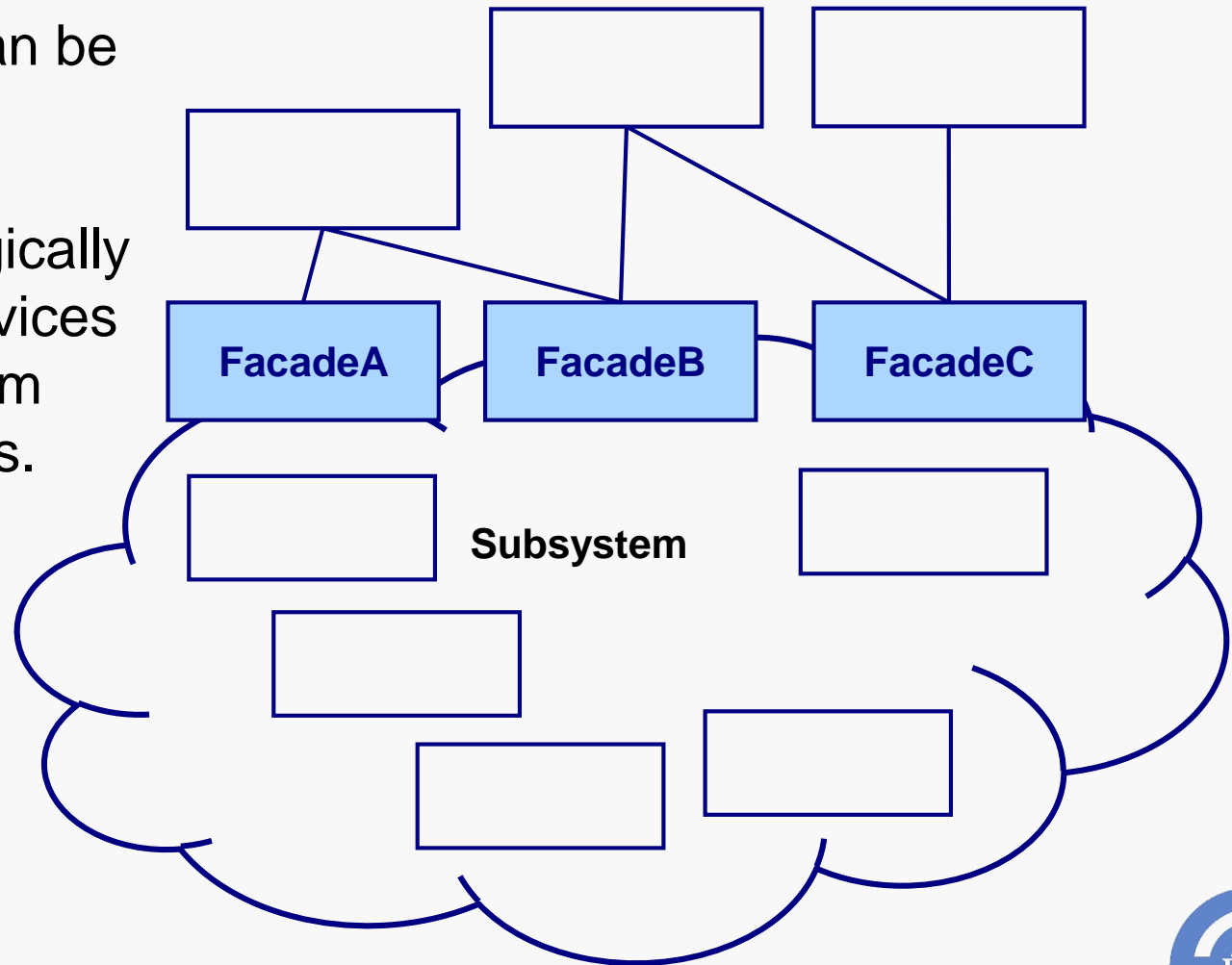
There are **two** characteristics that must be present to have a true Façade.

- Unified interface
 - *The clients know of one interface to call for services*
 - *Reduces coupling to the subsystem, but this is probably not the biggest benefit*
- Higher-level interface
 - *Each service must provide more than a client can get from a simple call to a subsystem object*
 - *Single-call "pass-through" functions are not a higher-level interface*

```
facadeFunction() {  
    subsystemObject->aFunction()  
}
```


Façades tend to quickly become bloated classes.

To eliminate this problem, there can be multiple types of Facades, each dealing with a logically related set of services that the subsystem provides to clients.



There are some interesting questions about the Façade pattern.

- Public or Private Subsystem (and implications)
 - *Should a Façade be the only interface to a subsystem?*
 - *Should the brave (or foolish) be able to call directly into the subsystem?*
- What are the similarities between Façade and Mediator with respect to a subsystem?