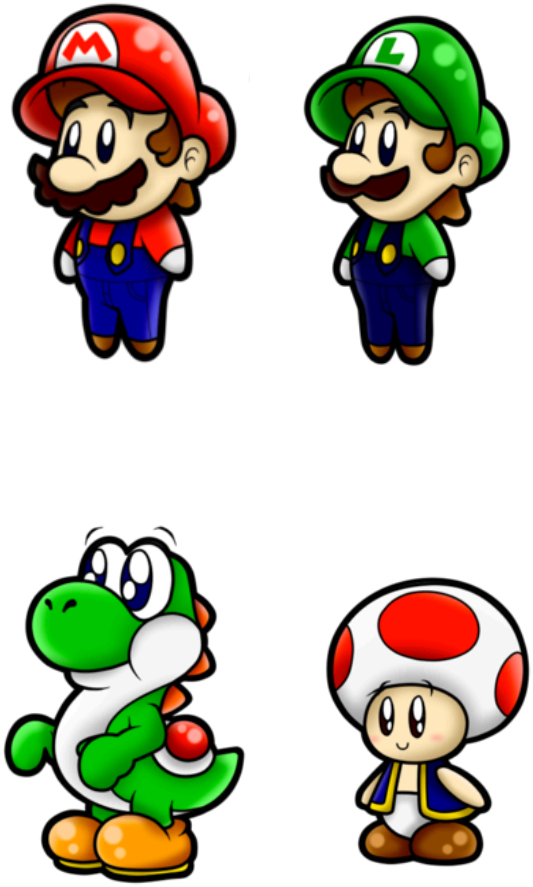
MEDIATOR PATTERN

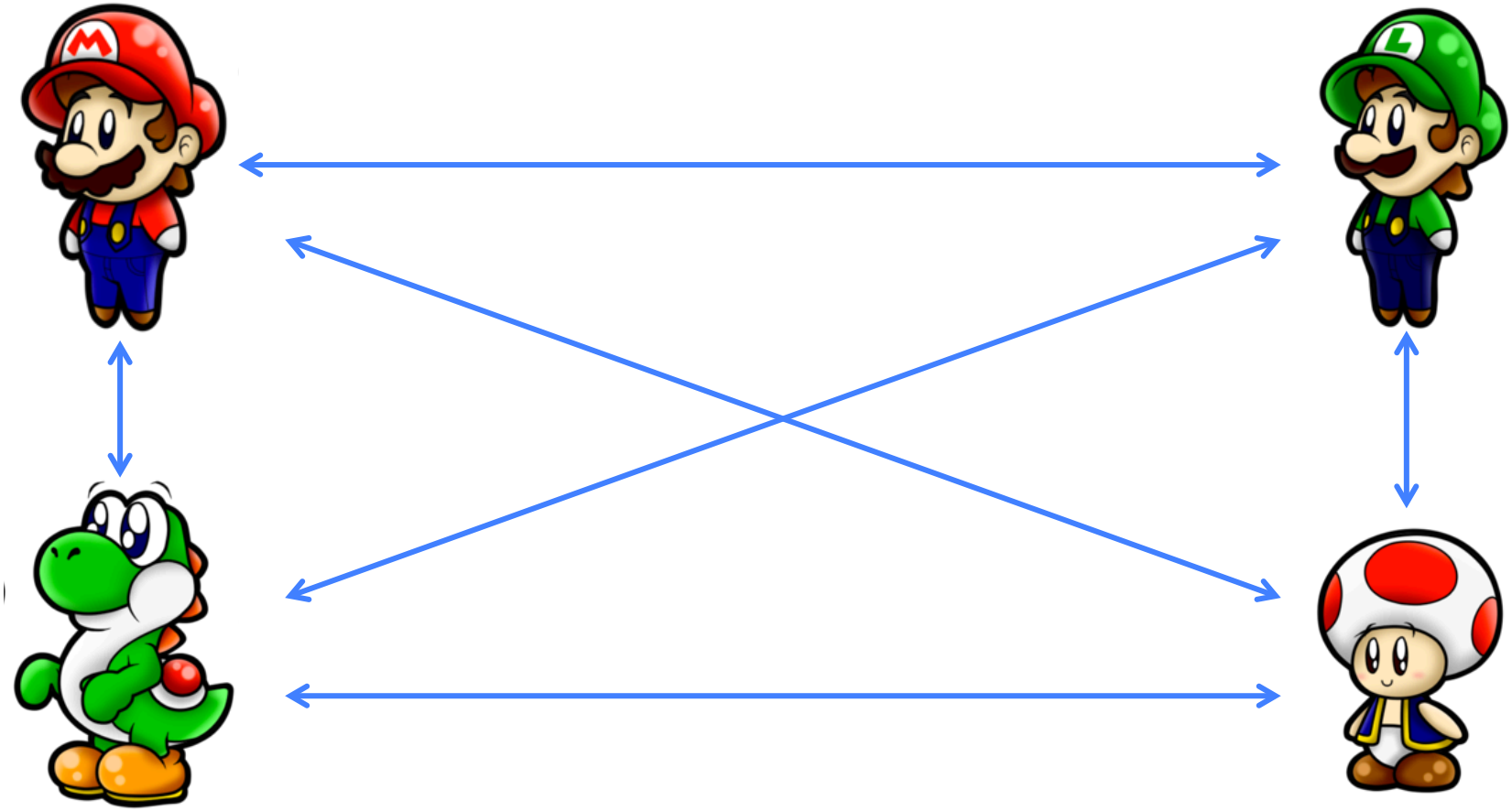
“Luigi, can’t talk long. Bowser doesn’t know my videophone still works for calling out. I don’t know where he’s keeping me. Sewage. He’s coming back. Later!”

-Princess Peach

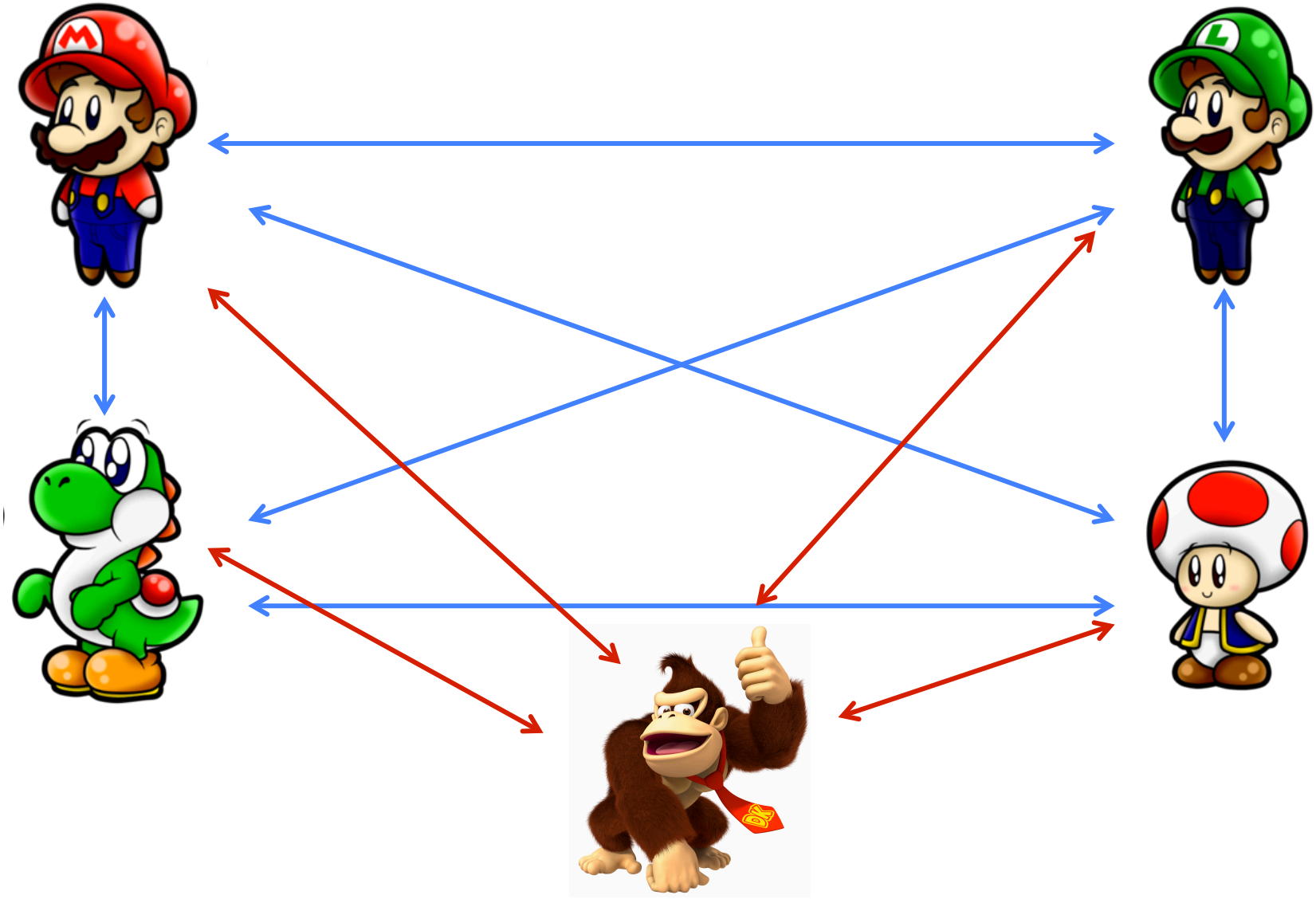
HERE'S THE DEAL...



Mario, Luigi, Yoshi, and the Mushroom need a system to communicate on their quest to save the Princess



Here's one way to connect our heroes…



What if we added a new character to the quest?

This architecture is not all that scalable

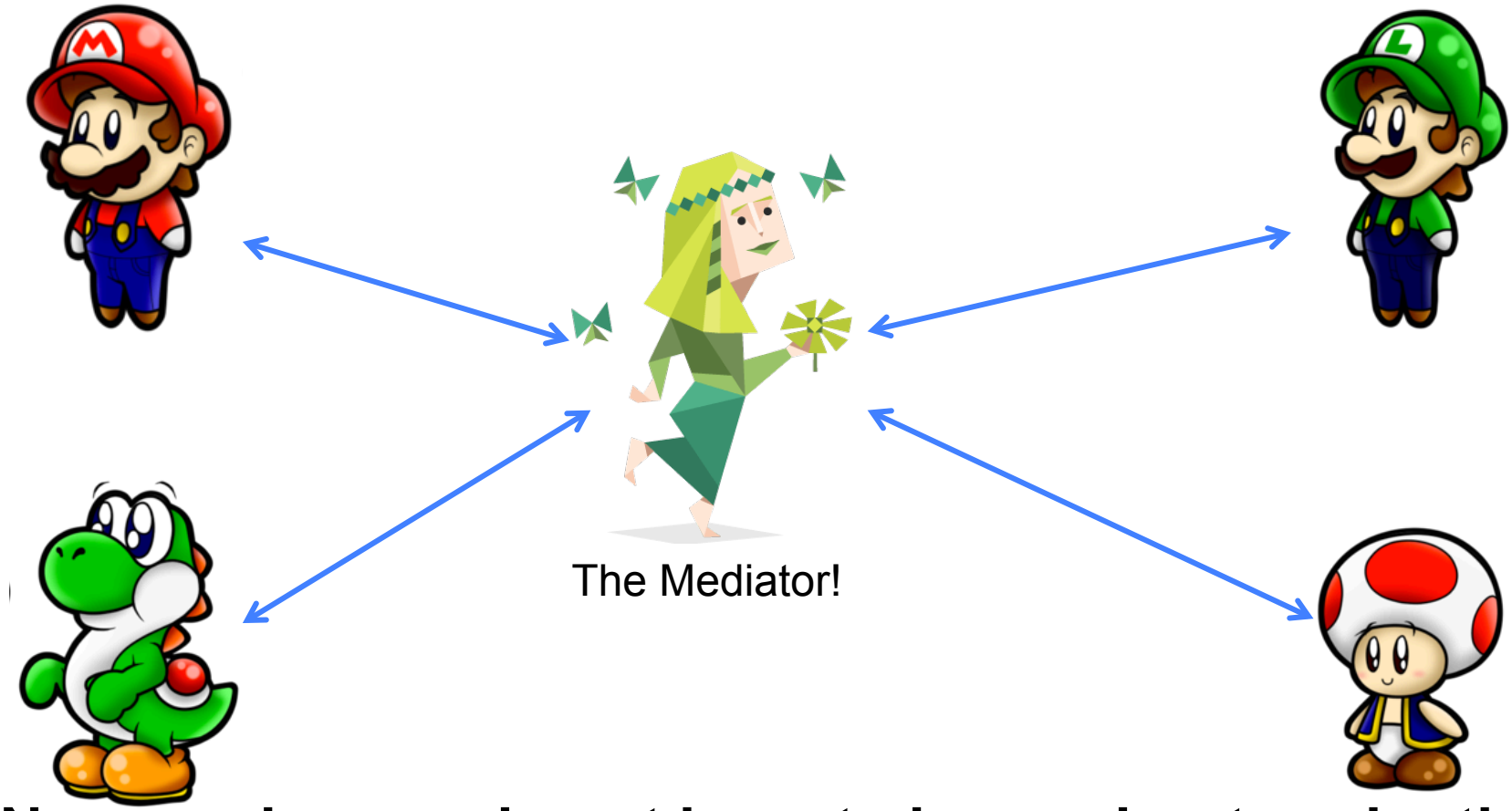
(The number of connections grows at O(n^2)…)

WHAT IF INSTEAD…

The Mediator!

We introduce a new role in the system – the mediator – responsible for relaying messages to our heroes

WHAT IF INSTEAD…



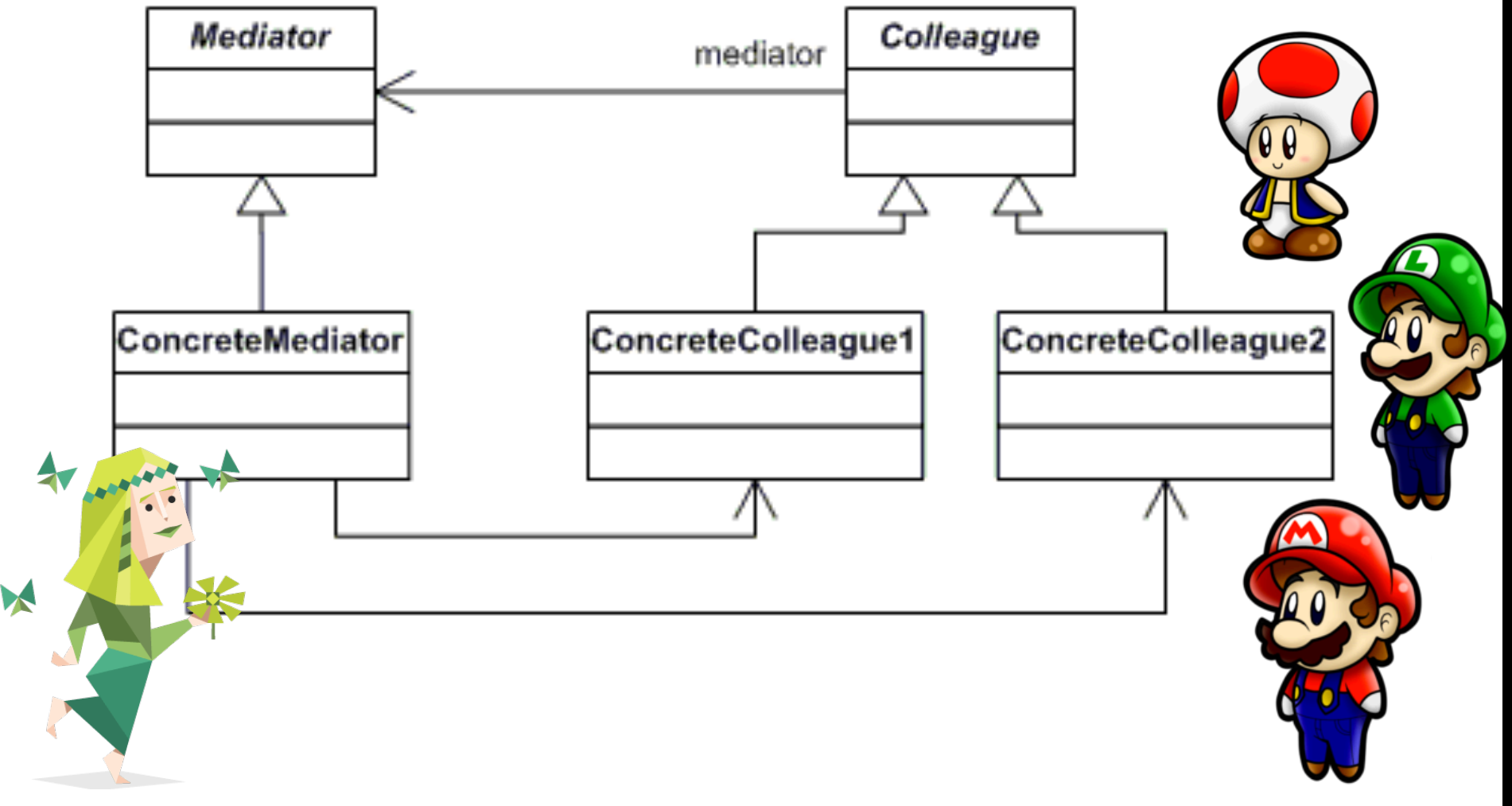
Now our heroes do not have to know about each other. They only interact with the mediator.

Now our architecture is way more scalable

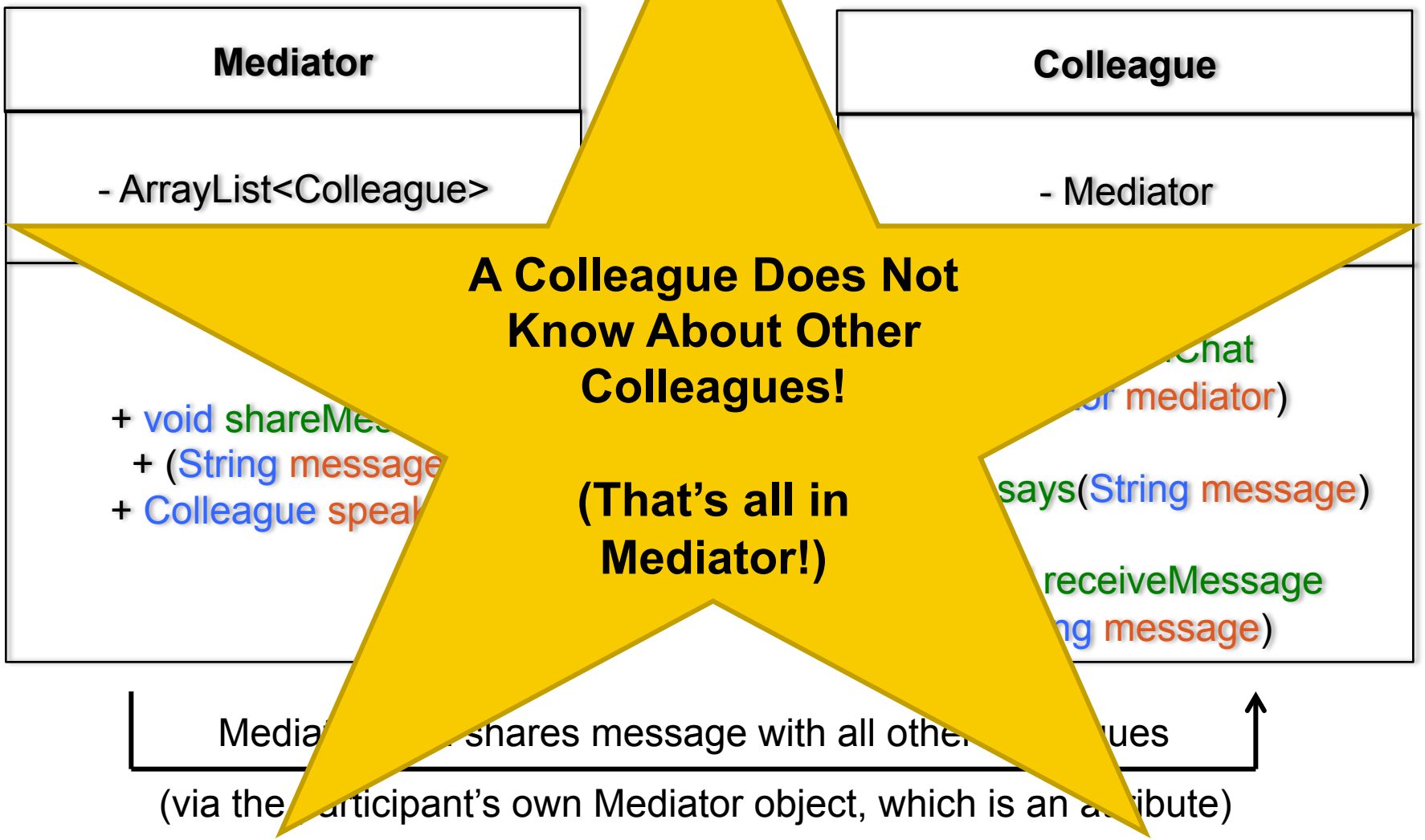
The number of connections grows at O(n)

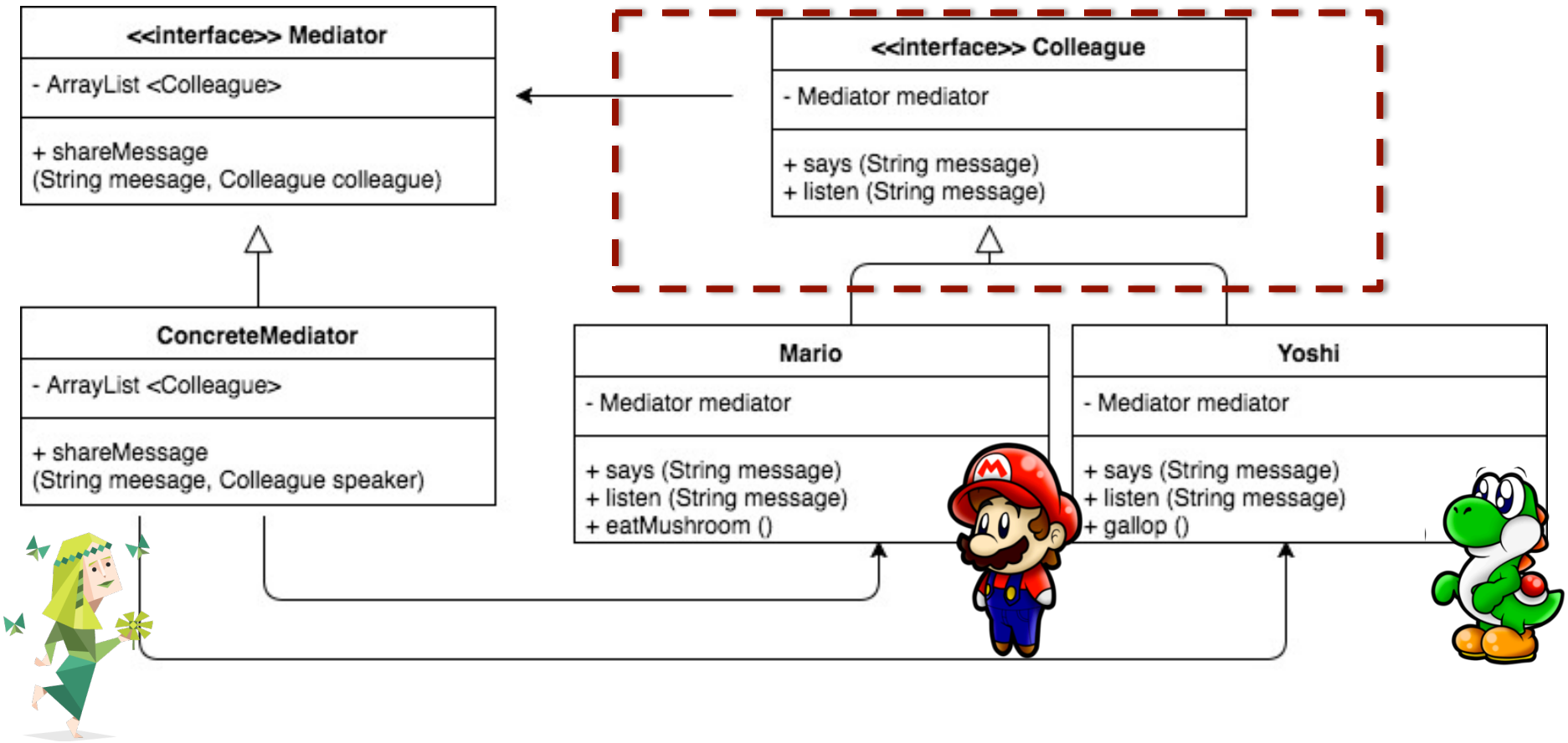
Ready for some UML?

ARCHITECTURE



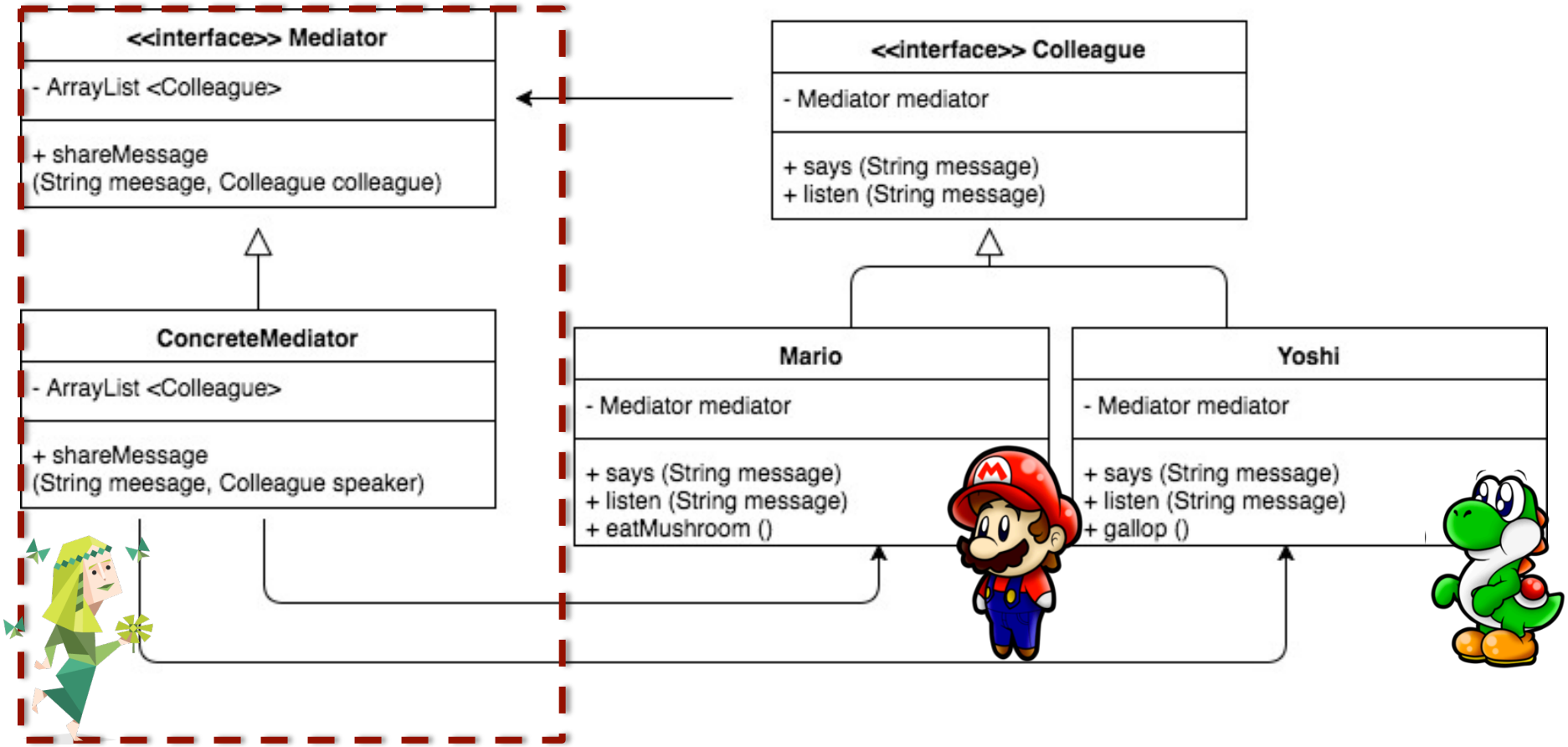
MEDIATOR & CO LEAGUE





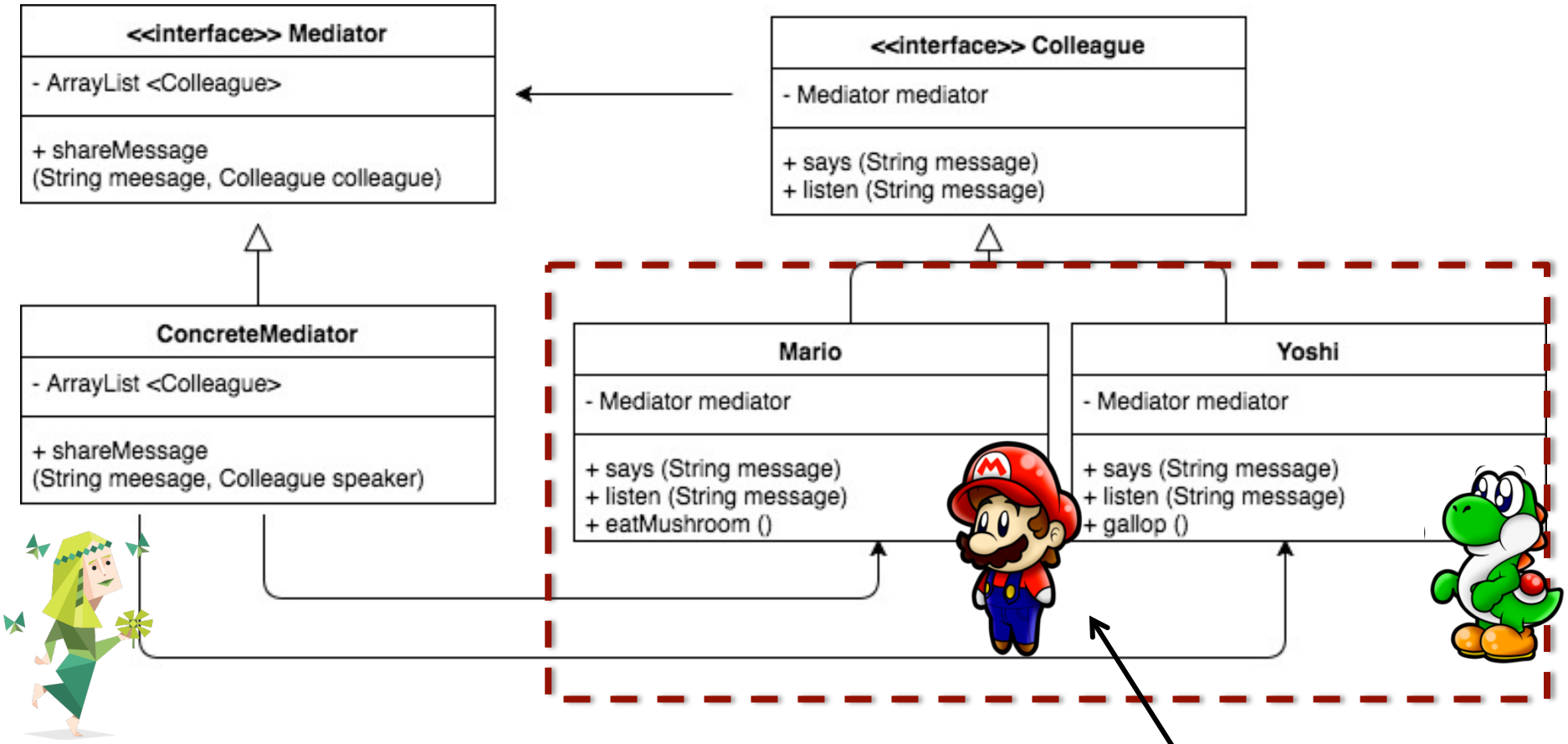

```
public class ConcreteColleague implements Colleague {
        String name;
        Mediator mediator;

        public void says(String message){
            mediator.shareMessage (name + " says: " + message, this);
          }
        }
```




```
public class ConcreteMediator implements Mediator {
    ArrayList<Colleague> heroes;

    public void shareMessage(String message, Colleague speaker){
        for (Colleague hero : heroes){
            if (hero != speaker) hero.listen (message);
            }
        }
    }
```




```
public class ConcreteColleague implements Colleague {
        String name;
        Mediator mediator;

        public void listen (String message){
                System.out.println (message);
            }
        }
```

Psst… Isn't Mario a Singleton?

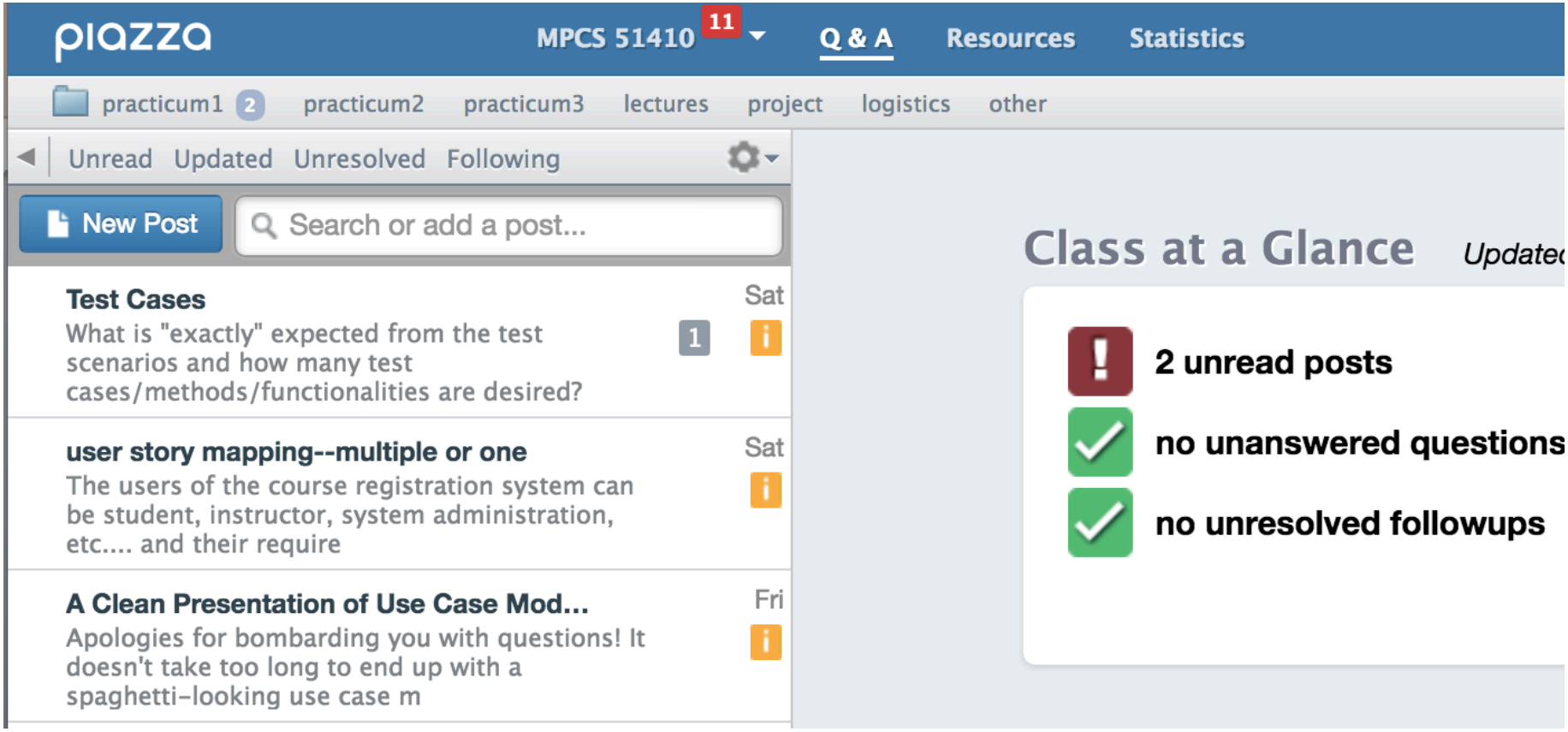
WHERE ELSE CAN WE FIND THE MEDIATOR?

(As if saving the Princess wasn't compelling enough… I get it, we can't all be into 90's video games!)

- GUI Window (Mediator) interacting with elements on the page (Colleagues)
- Radio Dispatch System
- Orchestra
- Air traffic control System
- Complex, High-stakes, Negotiation
- Dispute Resolutions

They're in more places than meets the eye!

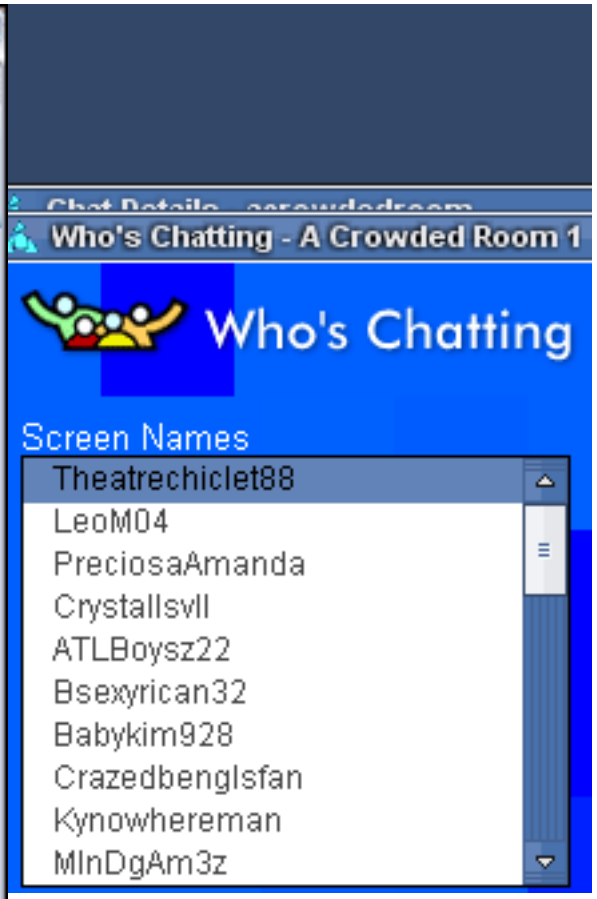
SOME REAL WORLD EXAMPLES



Our Beloved Piazza

SOME REAL WORLD EXAMPLES

(Again, still not stuck in the 90's :p)



Who remembers these?

A WORD OF WARNING

Positives:

- **Simplifies interaction between classes**
- **Allows for easier scalability**
- **From many-to-many interactions to one-to-many**
- **Allows easier reuse of Colleagues**
- **Easier to understand**

Negatives:

- **“Trade complexity of interaction for complexity of mediator”**
- **May end up with too complex of a mediator**
- **Risk is more concentrated in mediator**
- **Possibly leading to a more fragile system?**

THAT'S IT FOLKS!