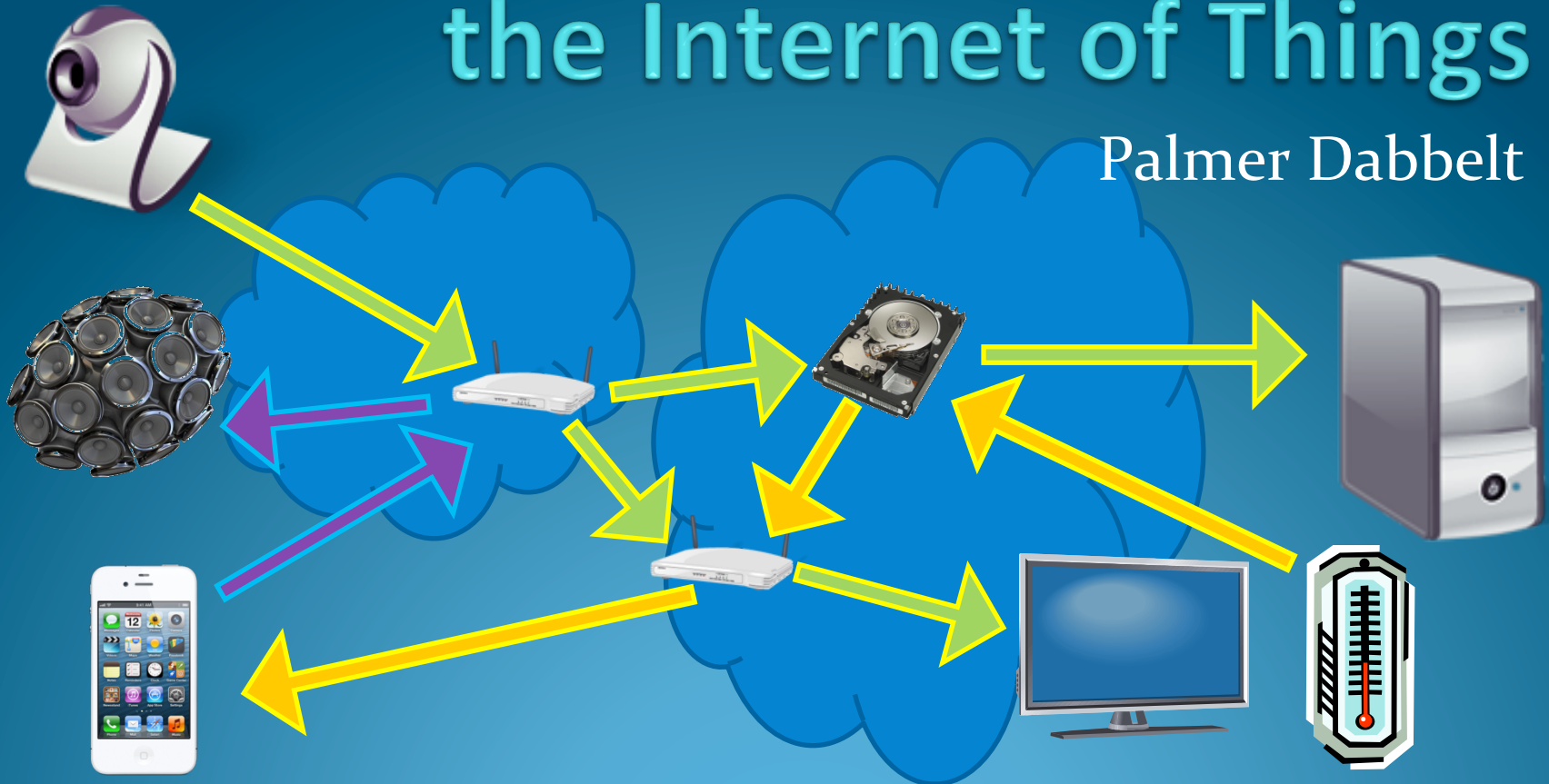


A Case for the Universal Dataplane: The Internet for the Internet of Things

Palmer Dabbelt



What does the Dataplane do for me?

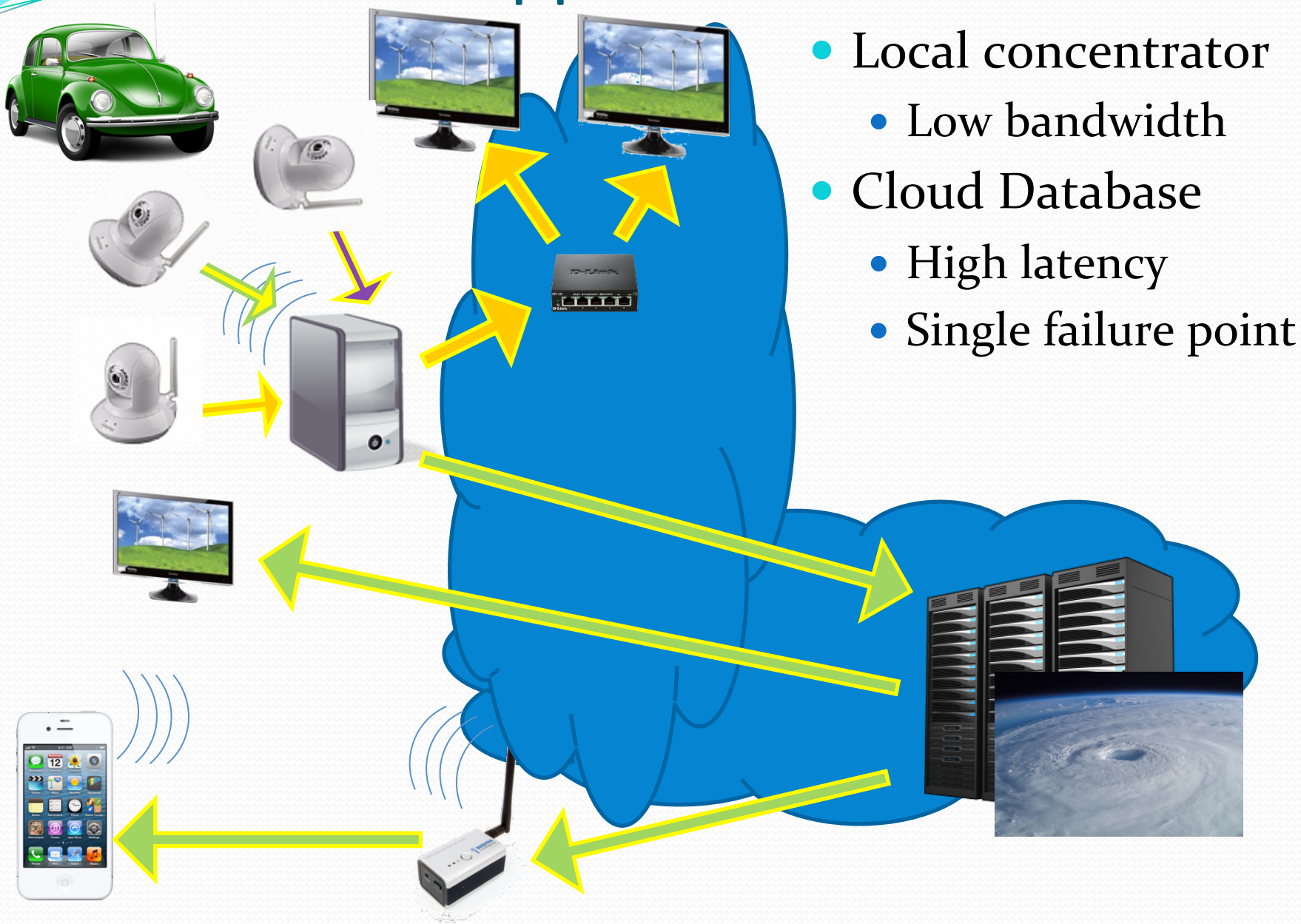
- Most programmers aren't kernel hackers
- Most companies aren't Google
- Focus on building swarmlets



```
main:  
  if (image.isRed()):  
    some_magic()
```

- **Let someone else handle the infrastructure**

Swarm-Scale Applications



- Local concentrator
 - Low bandwidth
- Cloud Database
 - High latency
 - Single failure point

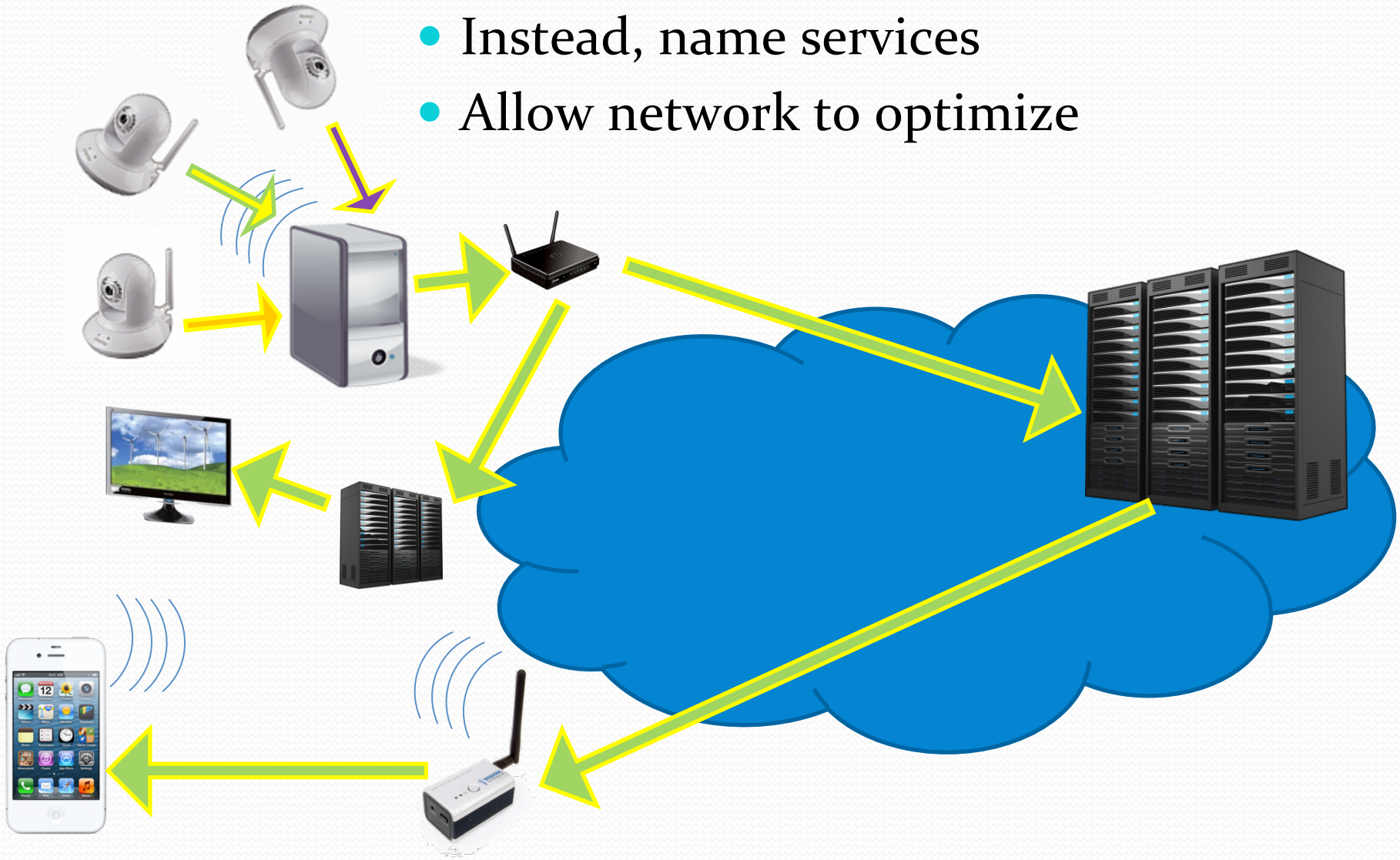
Communication+Storage as a Utility



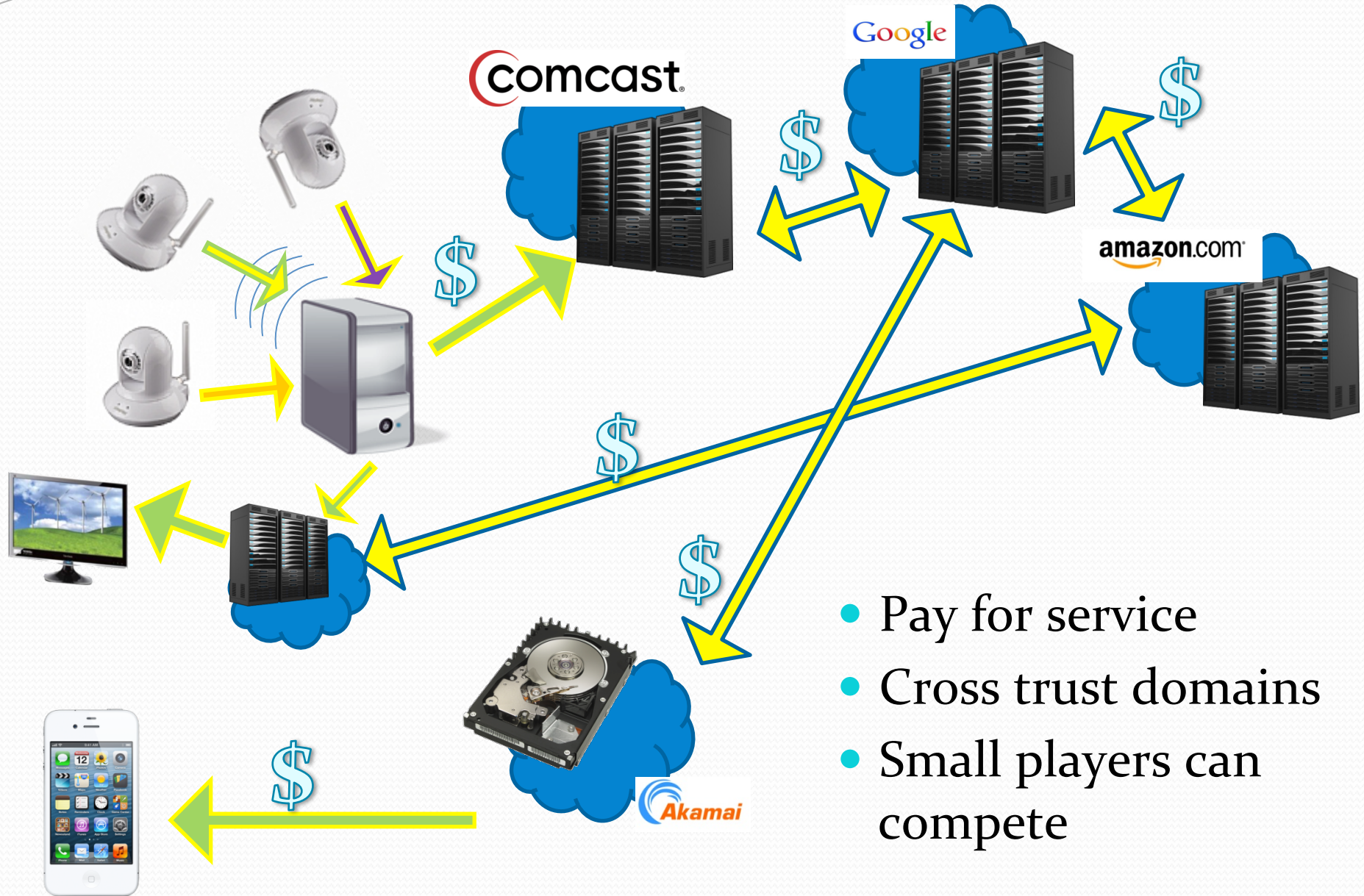
- You wouldn't buy a power plant to move electrons
- So why buy a server to move data?

Location Independent Naming

- Naming machines is wrong
- Instead, name services
- Allow network to optimize

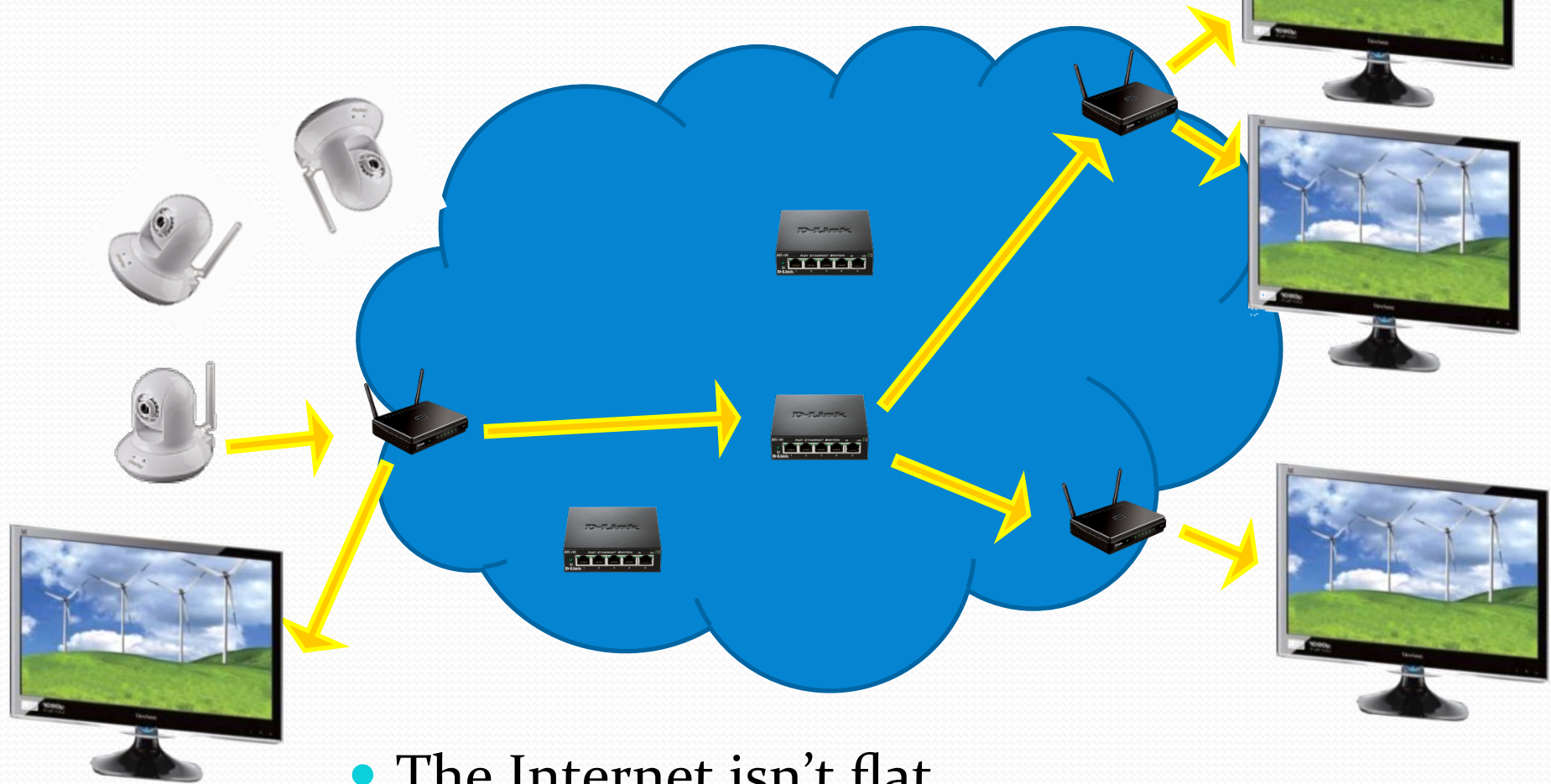


Cross-Domain Archival Storage



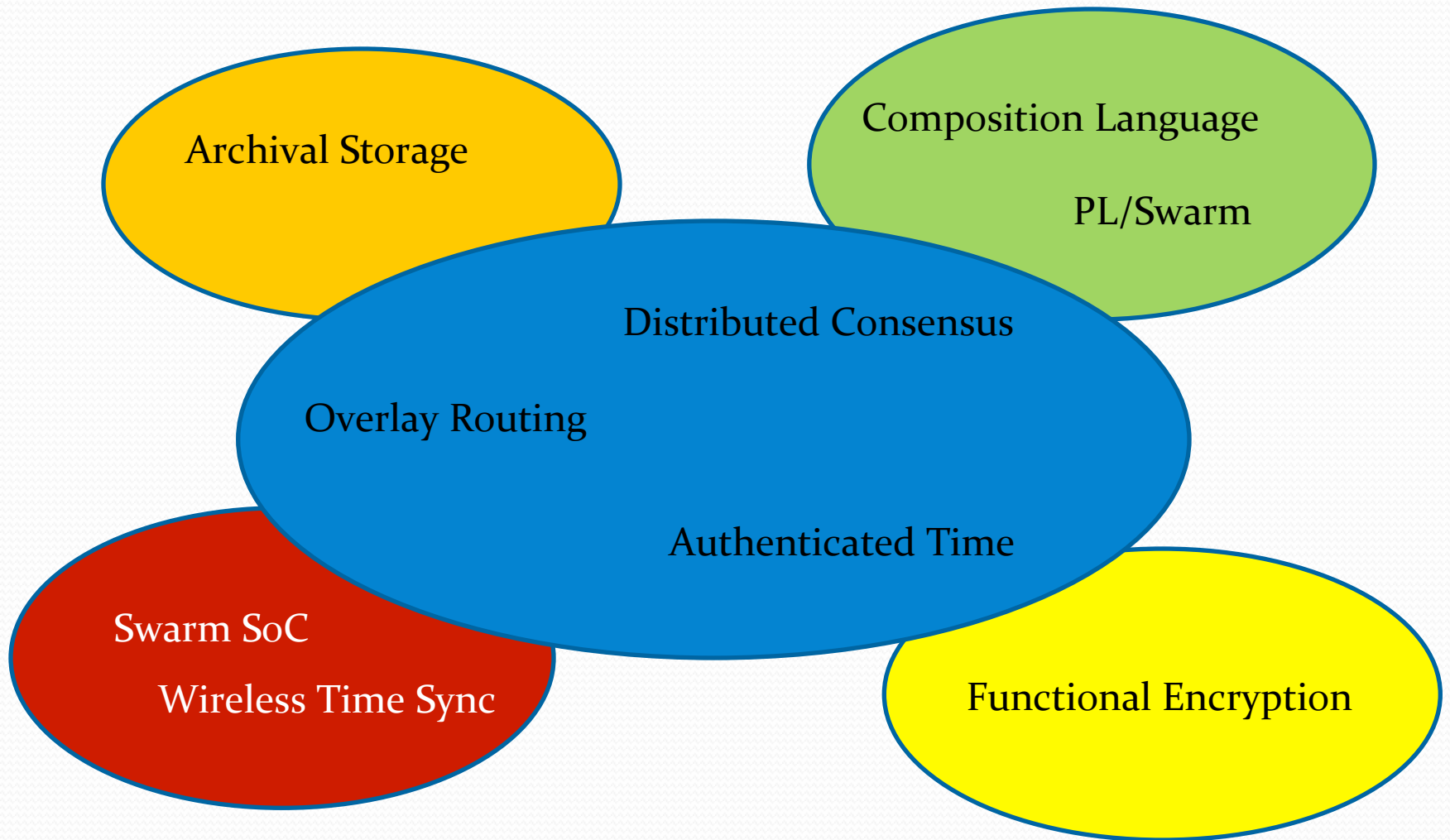
- Pay for service
- Cross trust domains
- Small players can compete

Dynamic Overlay Networks



- The Internet isn't flat
- Efficient dynamic multicast trees
- Maintain location independence

The Universal Dataplane



Conclusion

- Provide Communication+Storage as a utility
- Pay for a quality of service
- Concentrate on interesting problems