Martin Lippert

How Module Systems Give Direction to Architectures

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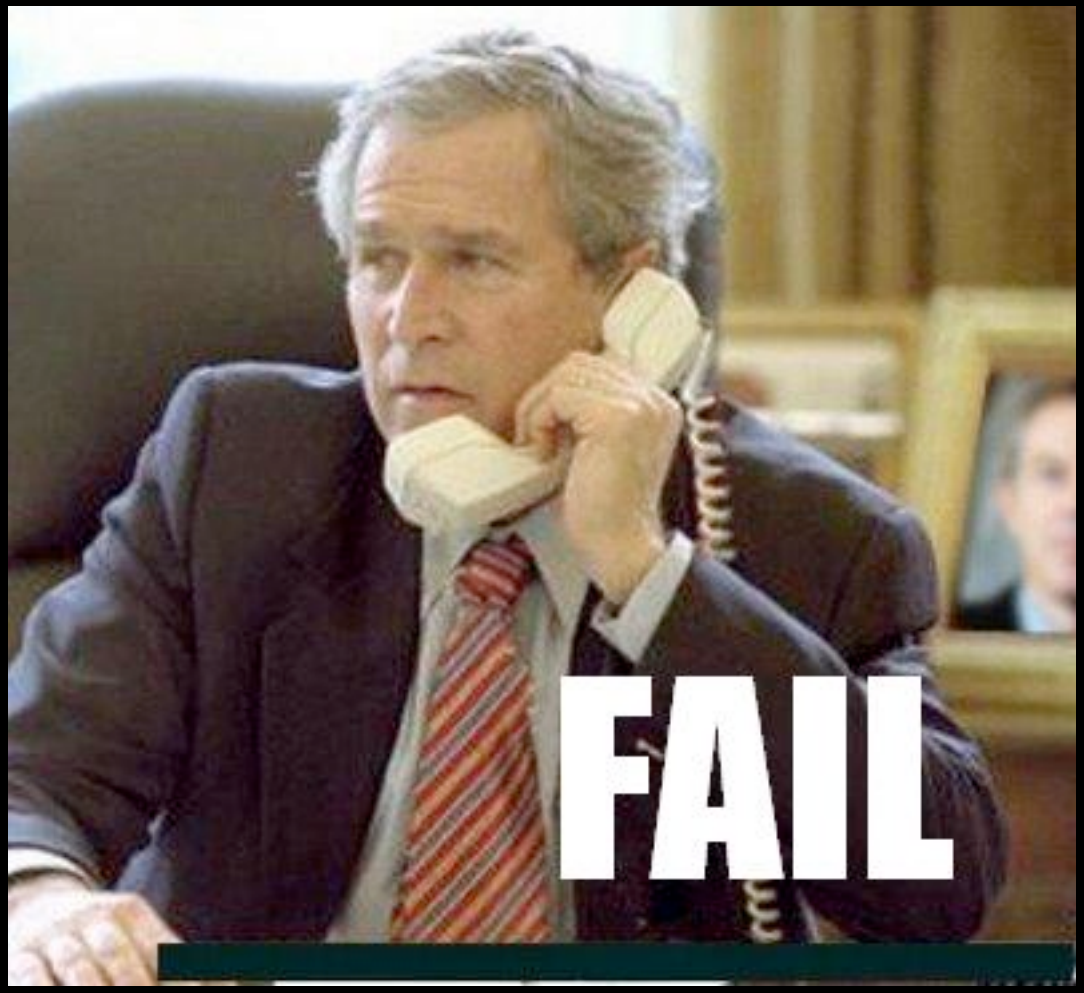
We are agile because we don‘t care about architecture – it will emerge magically

But you are probably wrong...



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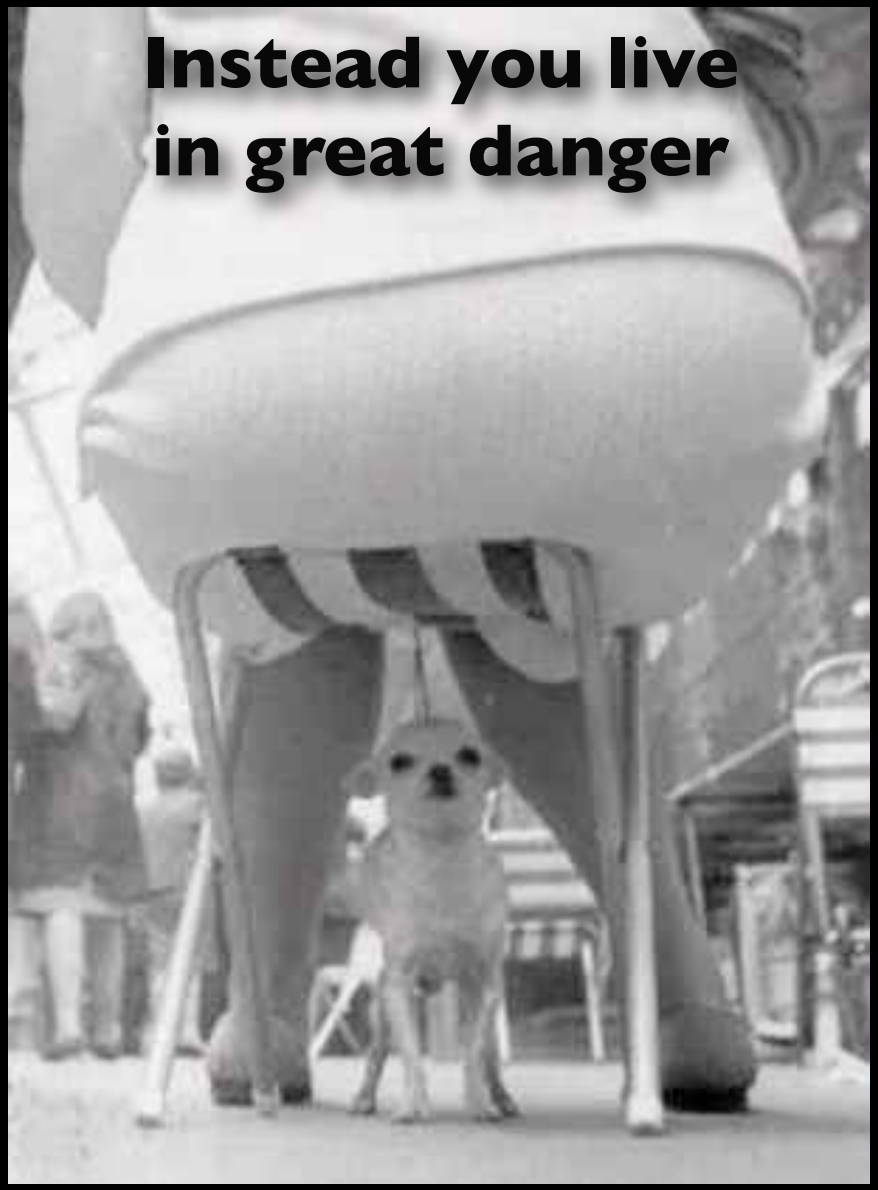

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Start simple and evolve

the long version

Gall's Law: "A complex system that works is invariably found to have evolved from a simple system that worked. The inverse proposition also appears to be true: A complex system designed from scratch never works and cannot be made to work. You have to start over, beginning with a working simple system."

– John Gall

How do systems look like in our daily work?

Looks familiar?


Wake up!
We need to change our direction...

Let‘s talk about

Architecture

Past...

Present...?

Future... ?!?

But what instead?


Flexibility &
Modularity

We need flexibility

changing requirements
learning process
incremental development

But wait!

We already have all this...

We have:

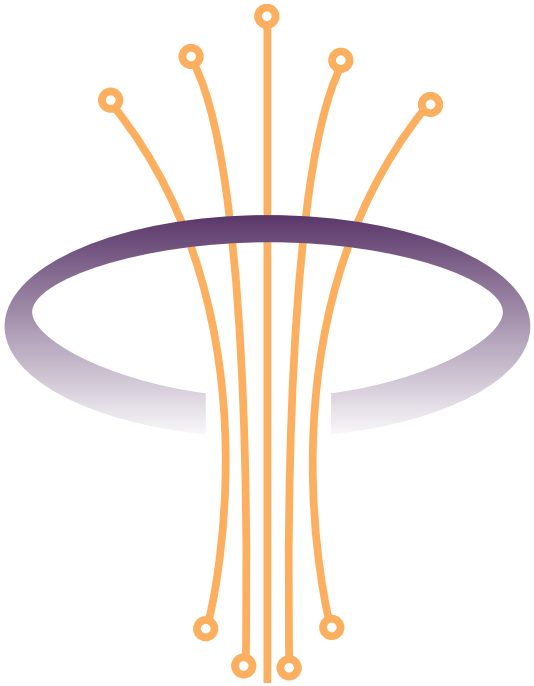
Object-Orientation
Patterns
Information Hiding
Encapsulation
Layers
...

We think our systems look like this...


But reality can
be hard...

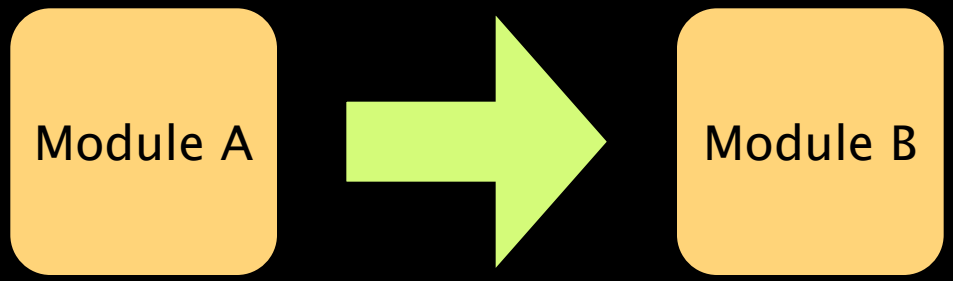
We need a real

module system

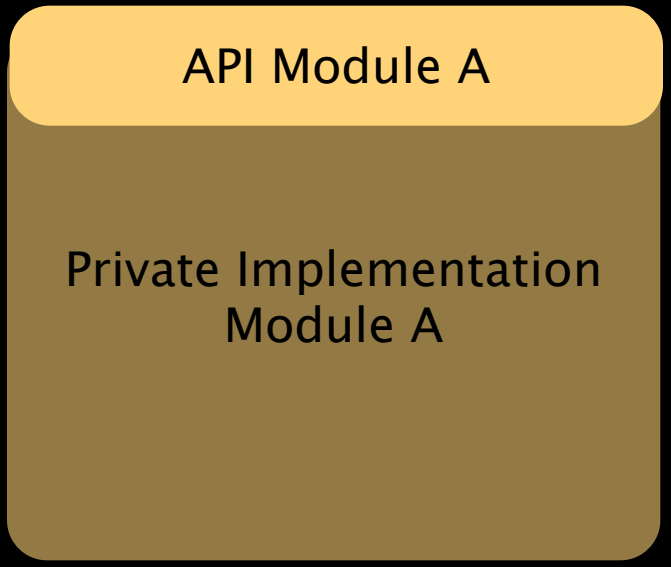


OSGi™ Alliance

I.
Dependencies



II.
Visibilities



III.
Dynamics

Where do we go?

Loose Coupling & High Cohesion

Think about your dependencies every single day

Sounds good...

But how to realize?

Good old design principles

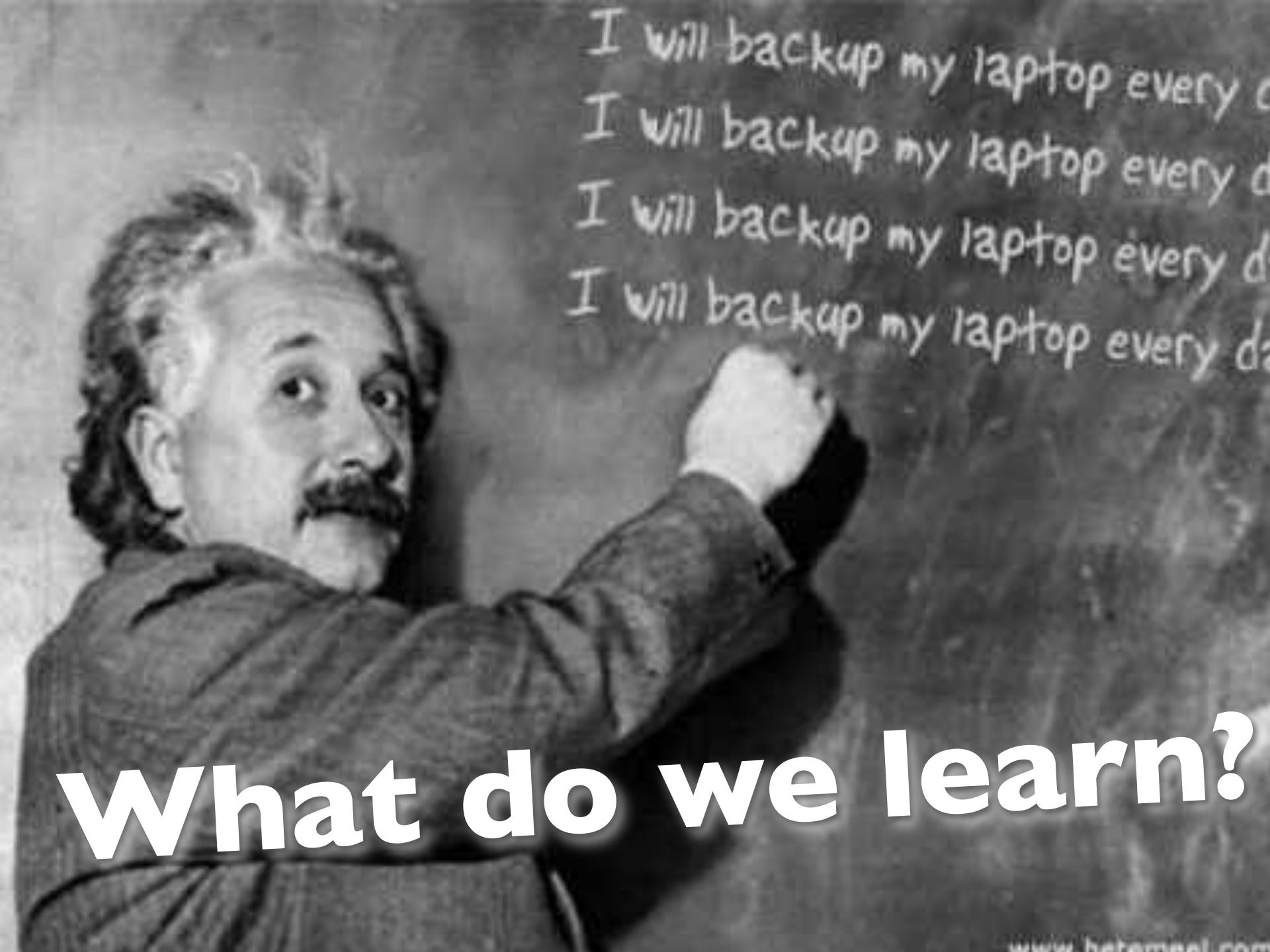
DIP SOC LSP ADP TDA DRY AIP

ISP SCP OCP IHP SRP SDP

new design principles

Use services → Separate between interface and implementation

Use extensions → working but extensible components


I will backup my laptop every
I will backup my laptop every
I will backup my laptop every
I will backup my laptop every
What do we learn?

Guide 1:
Many small modules

instead of few big ones

Guildeline 2:

Fewer connections between modules

instead of everything is wired to everything

Guideline 3:

Less visibilities

instead of making everything public

Guideline 4:
Many small frameworks

instead of few big ones

Guideline 5:

Think about extensibility

instead of knowing everything

Guideline 6:

Design your architecture every day

instead of ignoring what you have learned

Thank you
for your attention

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