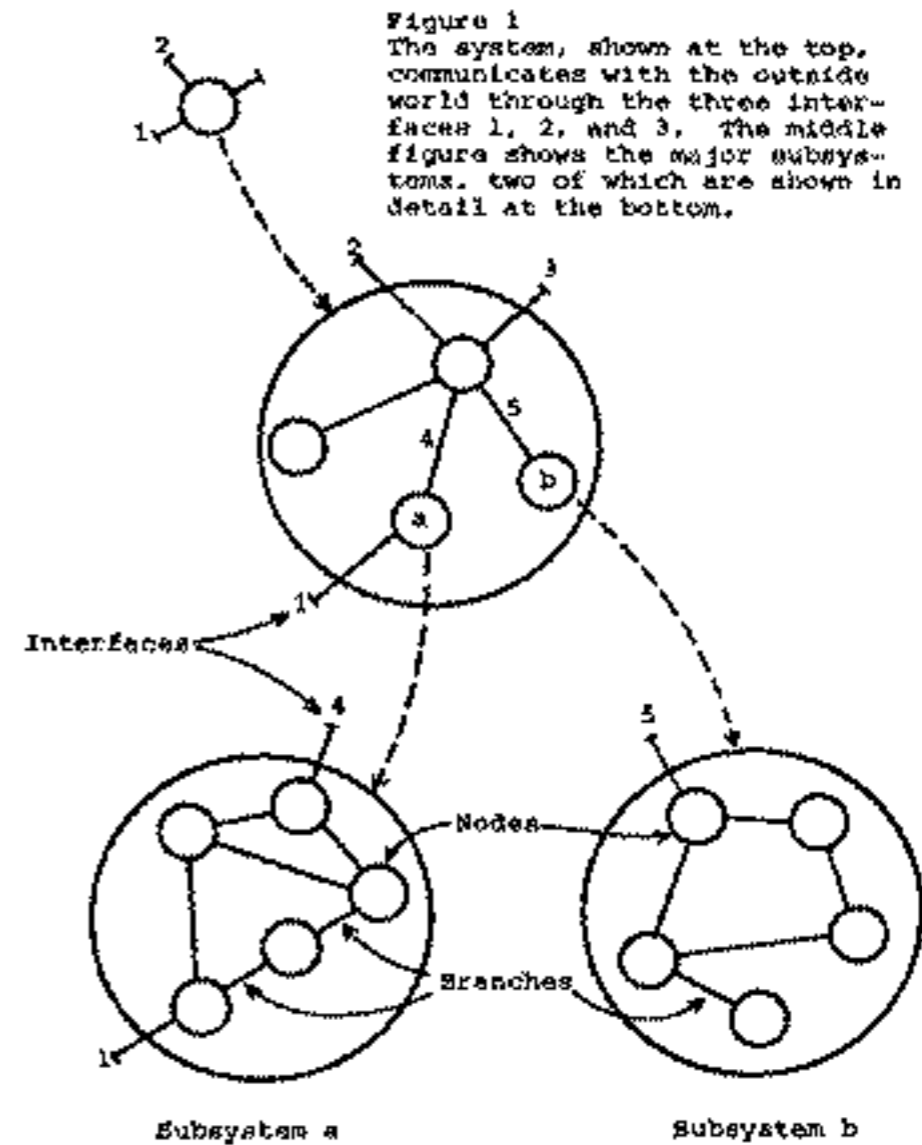


# If We Took Conway's Law Seriously..

Michael Feathers  
Director, R7K Research & Conveyance

# Conway's Law

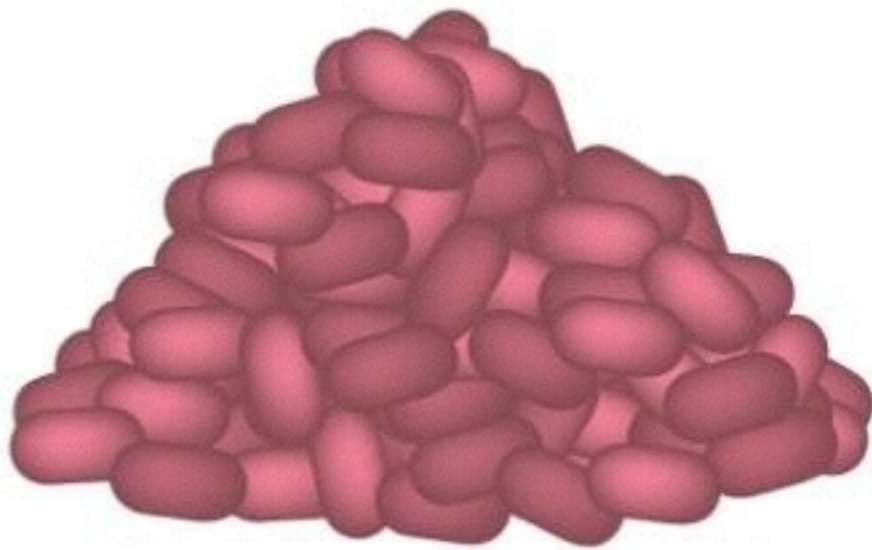
**Any organization that designs a system will inevitably produce a design whose structure is a copy of the organization's communication structure.**



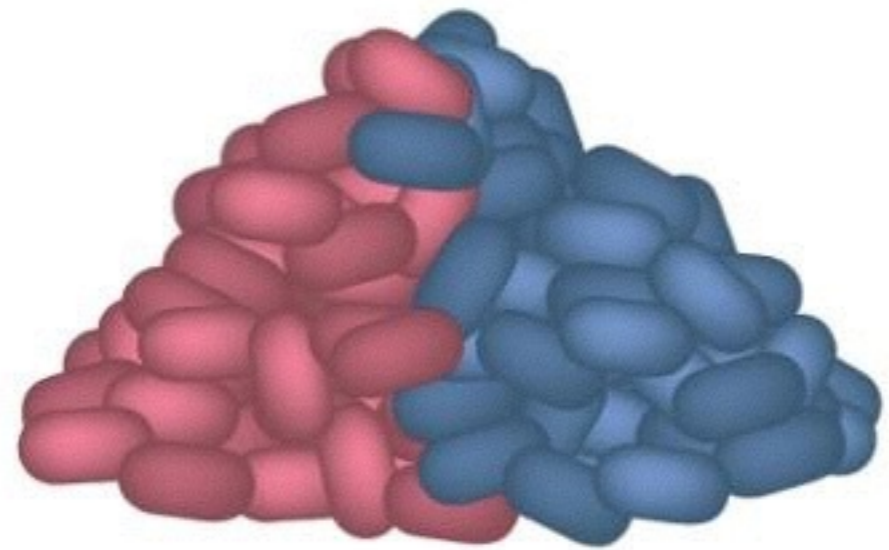
# Force Boundaries



# Active Management



**Original**



**One Half-life Later**

# Monitor Cruft



# Monitor Closure



Software entities should be **Open** for extension, but **Closed** for modification

# Turnover

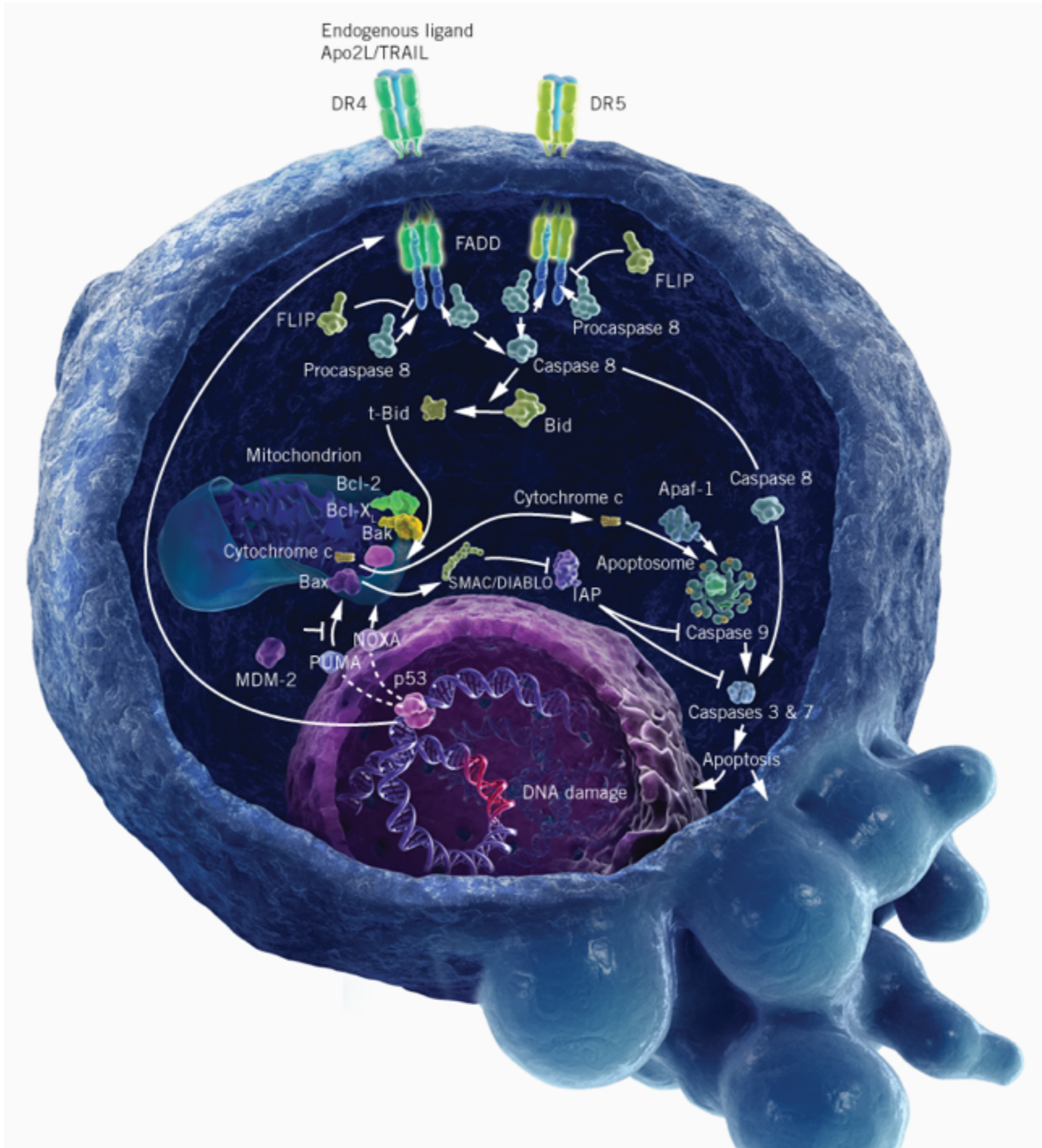
According to PayScale's most recent survey, employee turnover rate among Fortune 500 companies is greatest in the IT industry.

According to PayScale's recent employee turnover report, the employee turnover rate among Fortune 500 companies in the IT industry is the highest among all industries surveyed. Here's PayScale's list of companies with the shortest tenure:

Rank	Employer Name	Median Age of Employees	Median Employee Tenure	Median Pay
1	Massachusetts Mutual Life Insurance Company	38	0.8	\$60,000
2 - tie	Amazon.com Inc	32	1.0	\$93,200
2 - tie	American Family Life Assurance Company of Columbus (AFLAC)	38	1.0	\$38,000
4 - tie	Google, Inc.	29	1.1	\$107,000
4 - tie	Mosaic	37	1.1	\$69,900
6 - tie	Chesapeake Energy Corporation	31	1.2	\$60,500
6 - tie	Group 1 Automotive, Inc.	32	1.2	\$33,200
6 - tie	Ross Stores, Inc	29	1.2	\$23,800
6 - tie	Wellcare Health Plans, Inc.	38	1.2	\$49,900



**Team == Codebase**



---

## The Optimal Class Size for Object-Oriented Software

Authors: Khaled El Emam National Research Council, Ottawa, Ont., Canada  
Saïda Benlarbi Alcatel Networks Corp., Kanta, Ont., Canada  
Nishith Goel Cistel Technology, Nepean, Ont., Canada  
Walcelio Melo Oracle Brazil, Brasilia, Brazil  
Hakim Lounis CRIM, Montreal, P.Q., Canada  
Shesh N. Rai St. Jude Children's Research Hospital, Memphis, TN

Published in:

• Journal

IEEE Transactions on Software Engineering [archive](#)

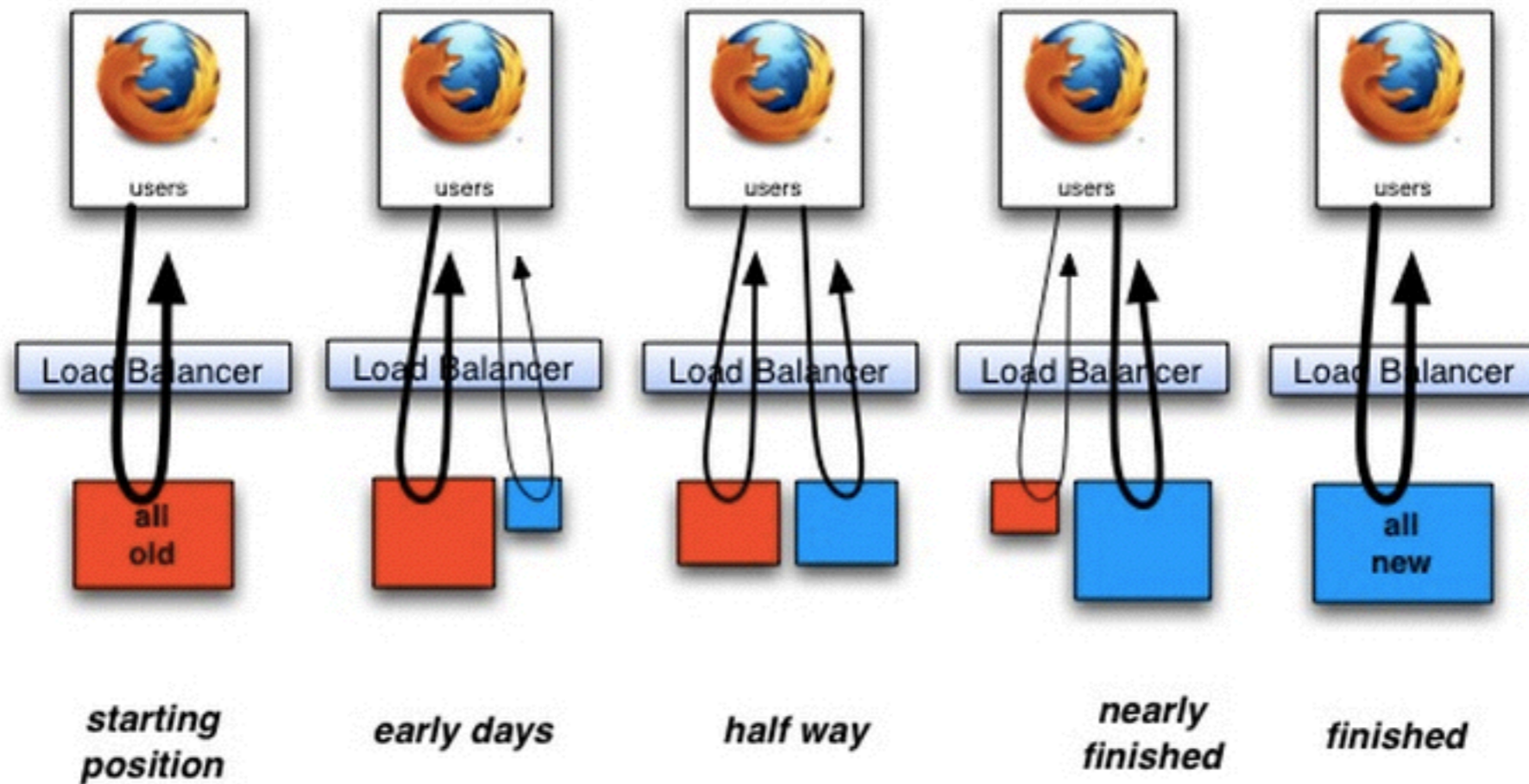
Volume 28 Issue 5, May 2002

Page 494-509

IEEE Press Piscataway, NJ, USA

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# Strangler Application Pattern

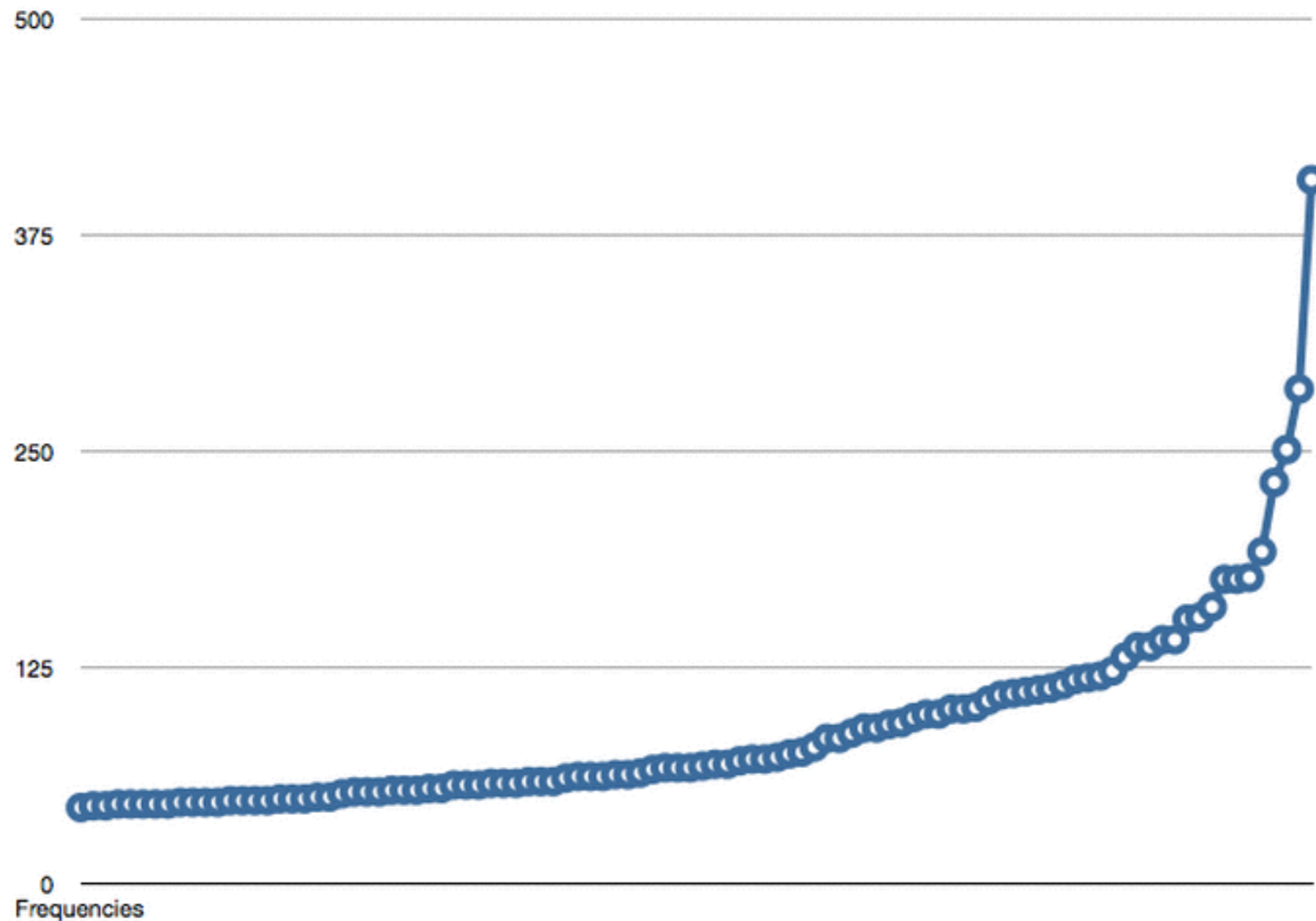


(Paul Hammant 2013)

# Temporal Correlations

```
events.group_by {|e| [e.day,e.committer]}.values  
  .map {|e| e.map(&:class_name).uniq.combination(2).to_a }  
  .flatten(1).norm_pairs.freq_by {|e| e }.sort_by {|p| p[1] }
```

When you examine these sorts of frequencies, they typically have this sort of shape:



# Broader Conway

# Peter Provost - The Butterfly Effect











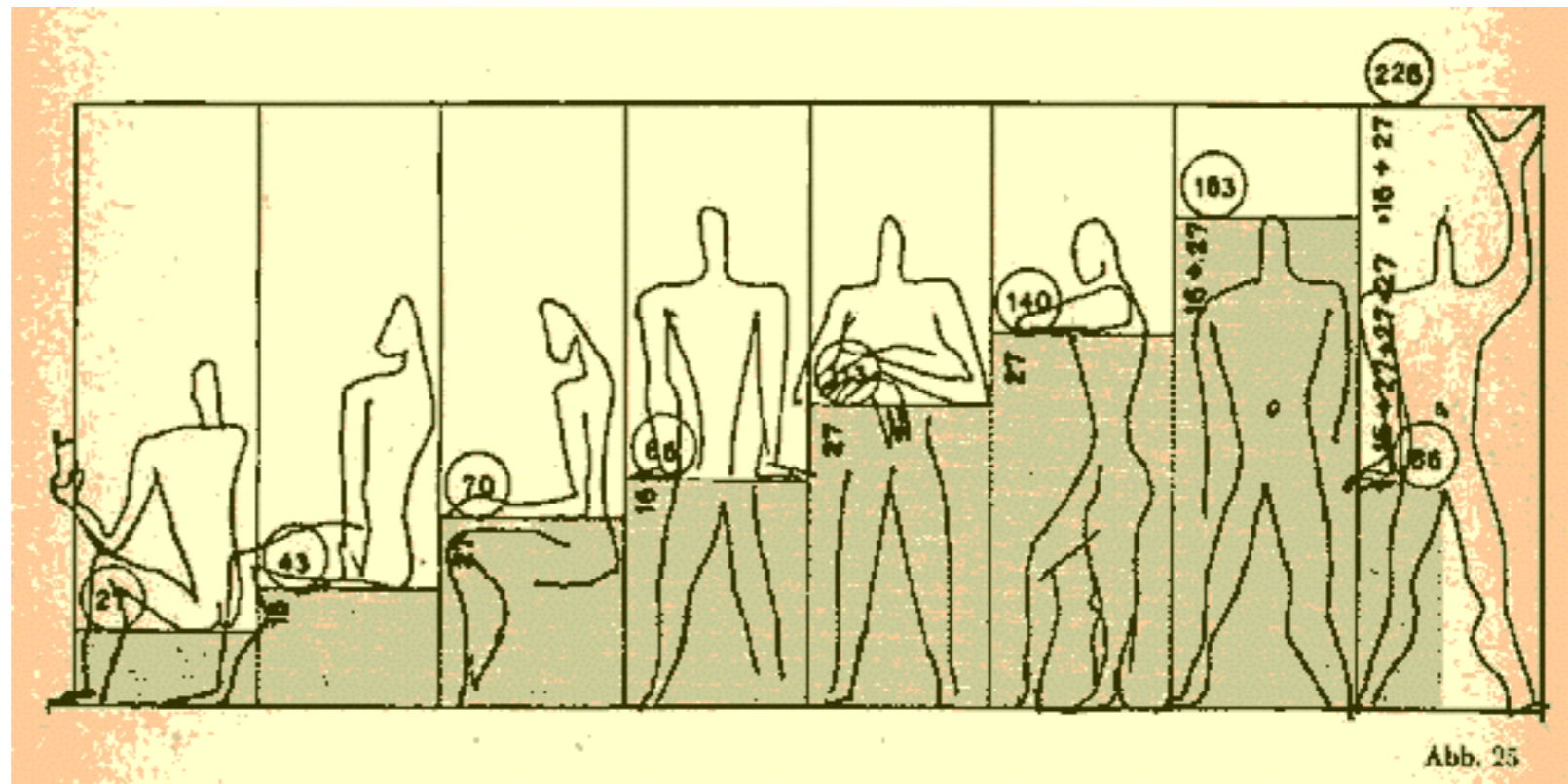
first year growth

rainy season

dry season

scar from forest fire

# Respect Human Scale



# Respect Human Scale

Dunbar's Number

# Respect Human Scale

Dunbar's Number  
Economies of Scale

# Respect Human Scale

Dunbar's Number  
Economies of Scale  
Product Sizing

# Continuous Large Scale Refactoring

**Strategically Plan Features and Design**



Maybe we don't need to make money  
that way?

Y. LINDEN  
AS A USER I WOULD  
LIKE A STORAGE TAB  
FOR A COMPANY, USER  
TYPE, ETC. I CAN OVERVIEW  
LINE N. NUMBER

SEARCH  
AS A USER I WOULD LIKE  
TO EASILY SEARCH  
THE SITE - BY COMPANY,  
LOCATION, ETC.

MAPS DATA  
AS A USER I WOULD LIKE  
THE DATA TO BE  
ACCESSIBLE - MULTIMEDIA,  
SON, VIDEO, ETC. SO  
I CAN MAKE IT UP

MAPS DATA  
AS A USER I WOULD LIKE  
TO BE ABLE TO SEE WHY  
SOME COUNTRIES/REGIONS  
ARE HOT AND OTHERS ARE NOT

\* SEARCH  
AS A USER I WOULD  
LIKE TO BE ABLE TO  
FIND STUFF BY NAME  
LOCATION, ETC., ETC.

ANALYSIS / IDENTITY  
AS A USER I WOULD LIKE  
TO BE ABLE TO MANAGE  
WHERE IDENTITY AND  
PREFERENCES ARE. AS A USER,  
I WOULD LIKE TO MANAGE  
LOCATION, COMPANY, COUNTRY,  
RANDOM INFO, ETC.

\* CREATING  
AS A USER I WOULD LIKE  
CONTRIBUTORS TO BE  
CLEARLY LISTED SO  
I CAN INCORPORATE THEM  
AND NOT BE SURPRISED  
TO LABEL / SEARCH BY

\* ASSET TRACK  
AS A USER I WOULD LIKE  
TO SEE THE HISTORY  
OF A DATA ENTRY. I  
CAN WORK OUT WHO DID  
WHAT

\* COMMENT  
AS A USER I WOULD  
LIKE TO BE ABLE TO  
GIVE / ASK FEEDBACK  
ABOUT A PAGE SO I  
DON'T HAVE TO CONTACT IT  
TO CONTRIBUTE.

\* SEARCH  
AS A USER I WOULD LIKE  
TO BE ABLE TO SEARCH  
ABOUT A PAGE

\* TESTING  
AS A USER I WOULD  
LIKE TO BE ABLE TO  
VIEW A PAGE SO I CAN  
FIND IT / ~~SEARCH~~ SEARCH  
IT

\* EDITING  
AS A USER I WOULD LIKE  
TO BE ABLE TO EDIT  
A PAGE SO I  
CAN KEEP IT UP TO  
DATE

\* ABOUT A COMPANY  
AS A USER I WOULD LIKE  
TO BE ABLE TO ADD A  
COMMENT TO THE DATA  
ABOUT A COMPANY  
SO I CAN LINK TO IT

\* FEEDS  
AS A USER I WOULD LIKE  
A FEED FOR CHANGES  
TO A PAGE / PAGE /  
THE WHOLE SITE

SEARCH PAGE  
AS A USER I  
WOULD LIKE A  
SEARCH PAGE  
WITH ALL RESULTS  
E.T.C.

\* TYPICAL PAGE  
AS A USER I WOULD LIKE  
TO COMMUNICATE  
WITH OTHERS WHO  
HAVE SEEN  
A PAGE (OR PAGE)  
AND I CAN  
SEE WHO HAS  
SEEN IT

\* COMMENTS  
AS A USER I WOULD LIKE  
TO BE ABLE TO COMMENT  
ON THE DATA  
I CAN COMMENT ON  
THE DATA

\* DATA HISTORY  
AS A USER I WOULD  
LIKE TO BE ABLE TO  
SEE THE HISTORY  
OF A DATA ENTRY  
SO I CAN WORK OUT  
WHO DID WHAT

\* CLAIM  
AS A USER I WOULD LIKE  
TO BE ABLE TO CLAIM  
A COMPANY / PAGE  
SO I CAN MANAGE IT

\* ADDING DATA  
AS A USER I WOULD LIKE  
TO ADD DATA FIELDS  
ANALYSIS, ETC., ETC.  
SO I CAN OVERVIEW THE DATA  
EASILY

# Death By A Thousand Features

Joel on Software

# The Law of Leaky Abstractions

by Joel Spolsky

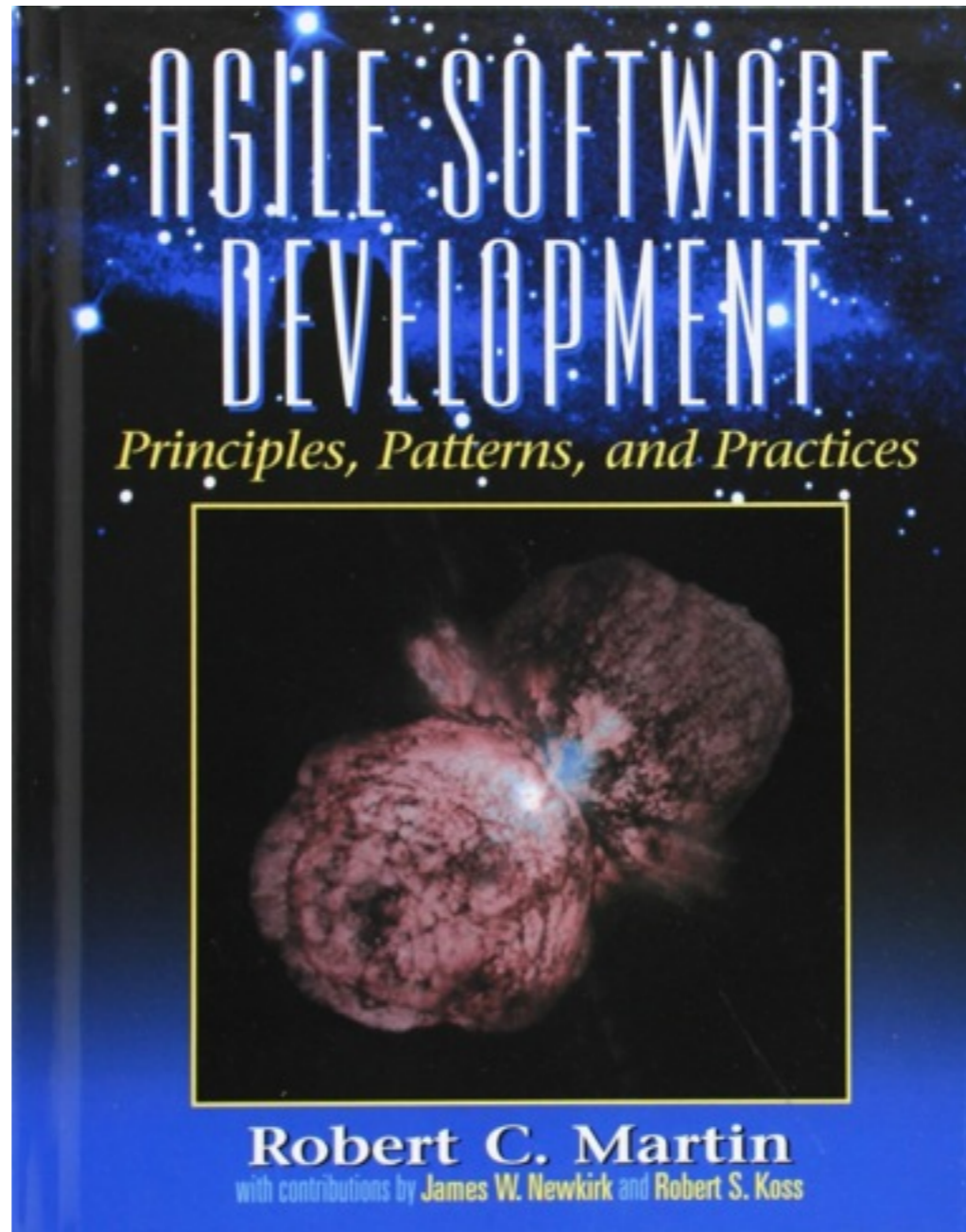
Monday, November 11, 2002

There's a key piece of magic in the engineering of the Internet which you rely on every single day. It happens in the TCP protocol, one of the fundamental building blocks of the Internet.

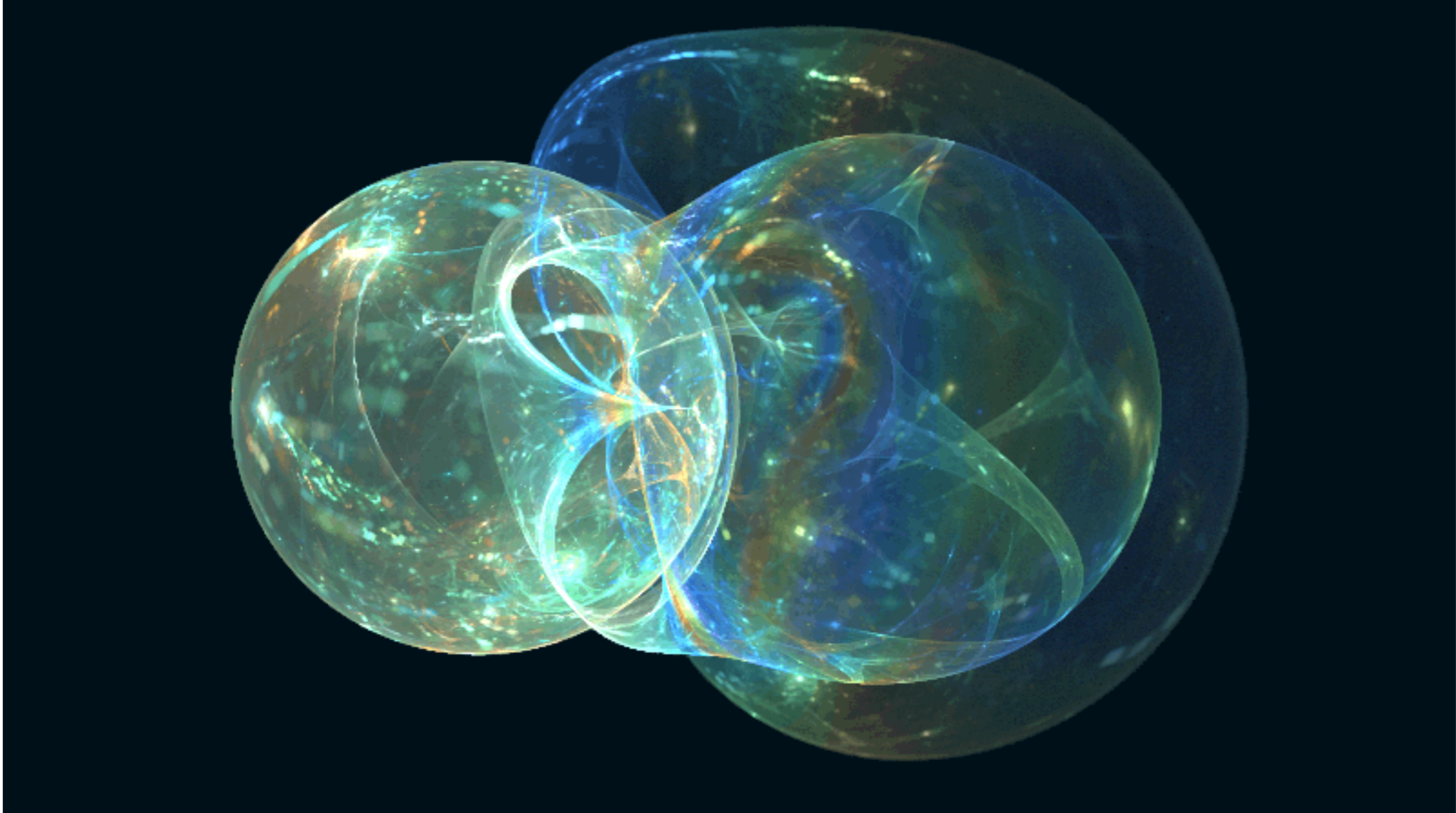
TCP is a way to transmit data that is *reliable*. By this I mean: if you send a message over a network using TCP, it will arrive, and it won't be garbled or corrupted.

# Boundary Readjustment

# Component Principles



# Evolutionary Service Design





r7k

michael.feathers@gmail.com  
@mfeathers