Introduction to Scrum

Mountain Goat Software, LLC

We're losing the race

"The… 'relay race' approach to product development…may conflict with the goals of maximum speed and flexibility. Instead a holistic or 'rugby' approach—where a team tries to go the distance as a unit, passing the ball back and forth—may better serve today's competitive requirements."

Hirotaka Takeuchi and Ikujiro Nonaka,
"The New New Product Development Game",
Harvard Business Review, January 1986.

Scrum in 100 words

Scrum is an agile process that allows us to focus on delivering the highest business value in the shortest time.

It allows us to rapidly and repeatedly inspect actual working software (every two weeks to one month).

The business sets the priorities. Teams self-organize to determine the best way to deliver the highest priority features.

Every two weeks to a month anyone can see real working software and decide to release it as is or continue to enhance it for another sprint.

Scrum origins

- Jeff Sutherland
  - Initial scrums at Easel Corp in 1993
  - IDX and 500+ people doing Scrum
- Ken Schwaber
  - ADM
  - Scrum presented at OOPSLA 96 with Sutherland
  - Author of three books on Scrum
- Mike Beedle
  - Scrum patterns in PLOPD4
- Ken Schwaber and Mike Cohn
  - Co-founded Scrum Alliance in 2002, initially within the Agile Alliance

Scrum has been used by:

Microsoft
Yahoo
Google
Electronic Arts
Lockheed Martin
Philips
Siemens
Nokia
IBM
Capital One
BBC

Intuit
Nielsen Media
First American Real Estate
BMC Software
Ipswitch
John Deere
Lexis Nexis
Sabre
Salesforce.com
Time Warner
Turner Broadcasting
Oce

Scrum has been used for:

- Commercial software
- In-house development
- Contract development
- Fixed-price projects
- Financial applications
- ISO 9001-certified applications
- Embedded systems
- 24x7 systems with 99.999% uptime requirements
- the Joint Strike Fighter
- Video game development
- FDA-approved, life-critical systems
- Satellite-control software
- Websites
- Handheld software
- Mobile phones
- Network switching applications
- ISV applications
- Some of the largest applications in use

Characteristics

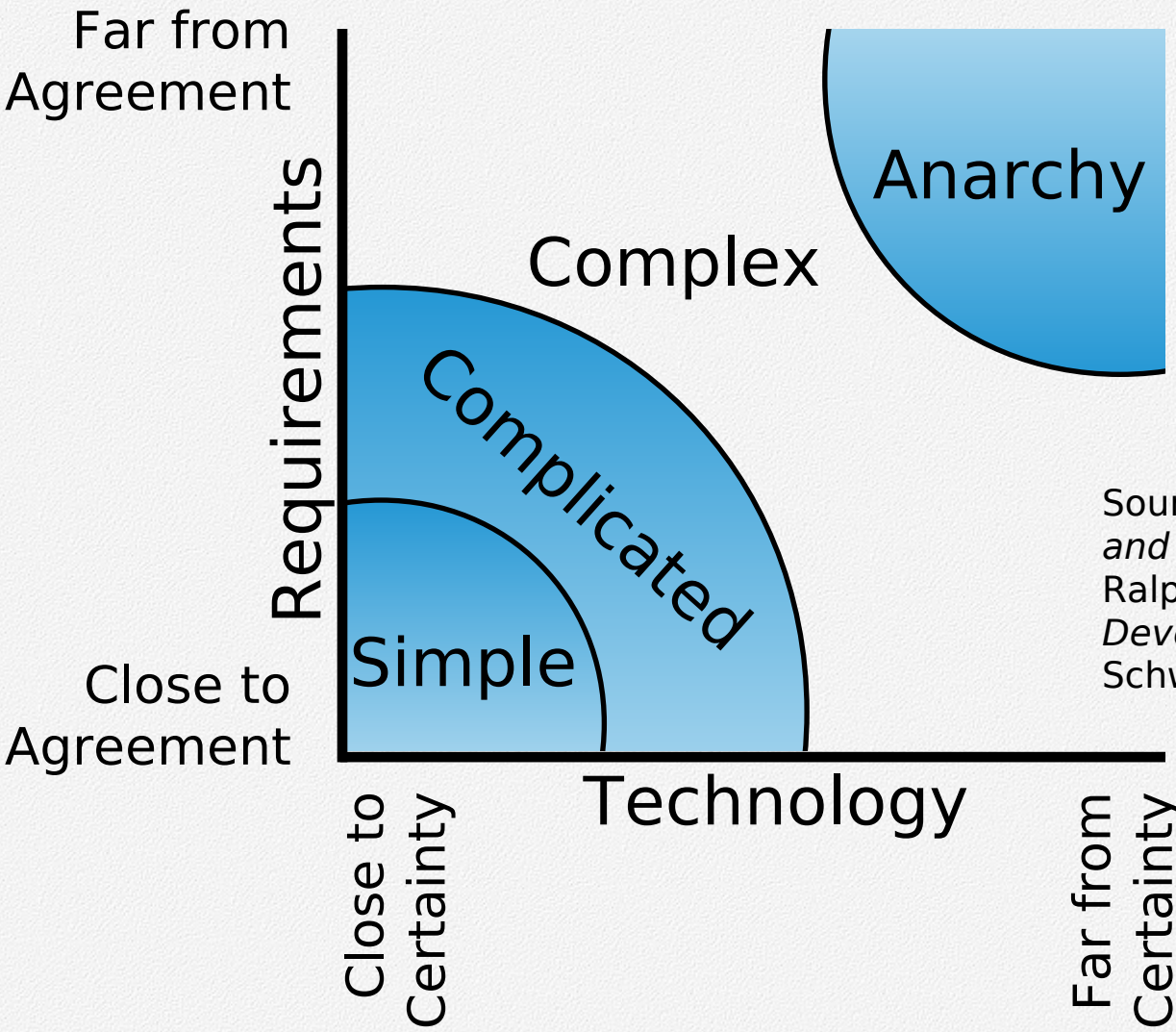
- Self-organizing teams
- Product progresses in a series of fixed-length "sprints"
- Requirements are captured as items in a "product backlog"
- No specific engineering practices prescribed
- Uses generative rules to create an agile environment for delivering projects

The Agile Manifesto a statement of values

Individuals and interactions	over	Process and tools
Working software	over	Comprehensive documentation
Customer collaboration	over	Contract negotiation
Responding to change	over	Following a plan

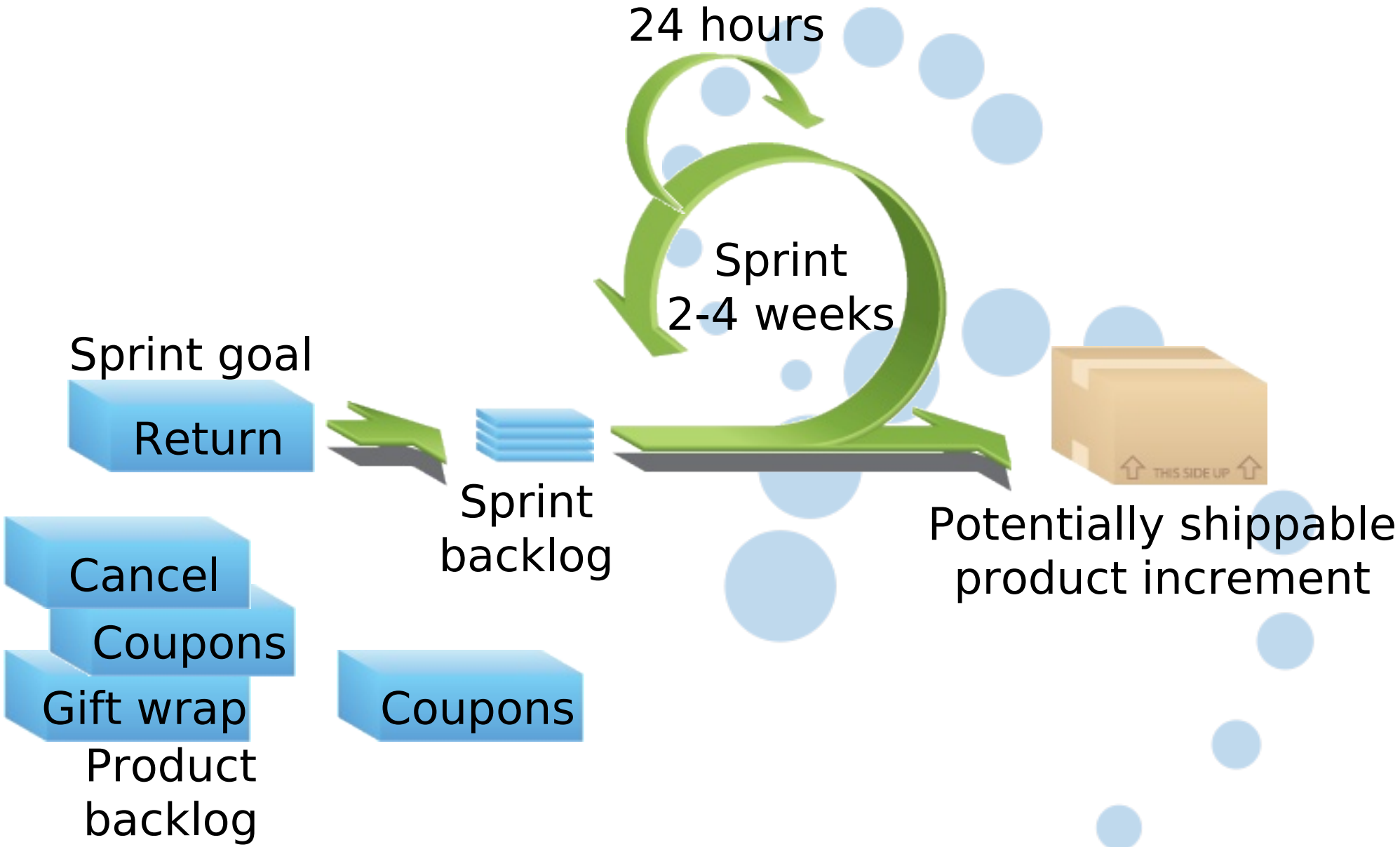
Source:
www.agilemanifesto.org

Project noise level



Source: *Strategic Management and Organizational Dynamics* by Ralph Stacey in *Agile Software Development with Scrum* by Ken Schwaber and Mike Beedle.

Scrum


24 hours
Sprint
2-4 weeks
Sprint goal
Return
Sprint
backlog
Potentially shippable
product increment
Cancel
Coupons
Gift wrap
Product
backlog
Coupons

Putting it all together

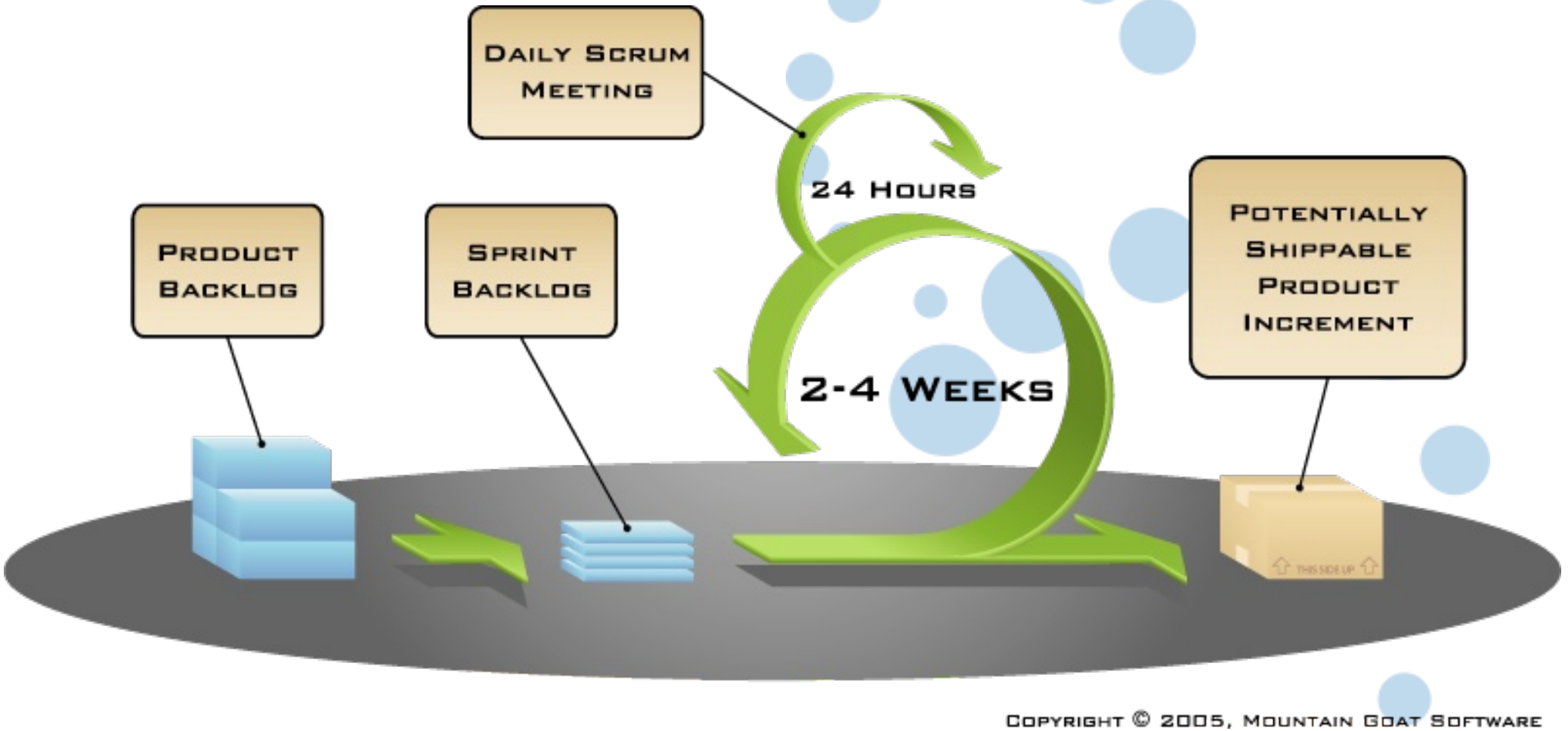


Image available at
www.mountaingoatsoftware.com/scrum

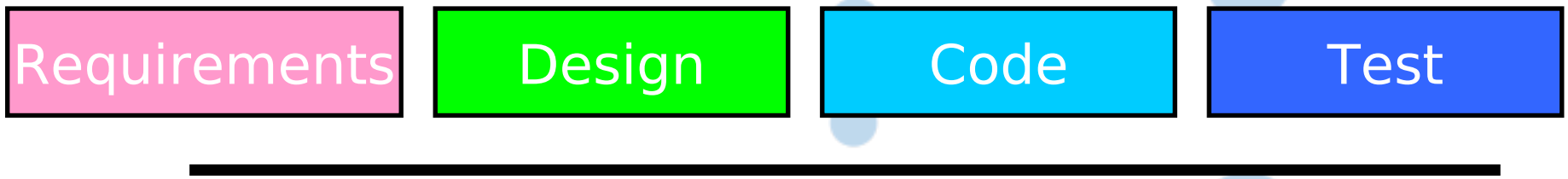
Sprints

Product is designed, coded, and tested during a series of sprints

Typical length 2–4 weeks; a calendar month at most

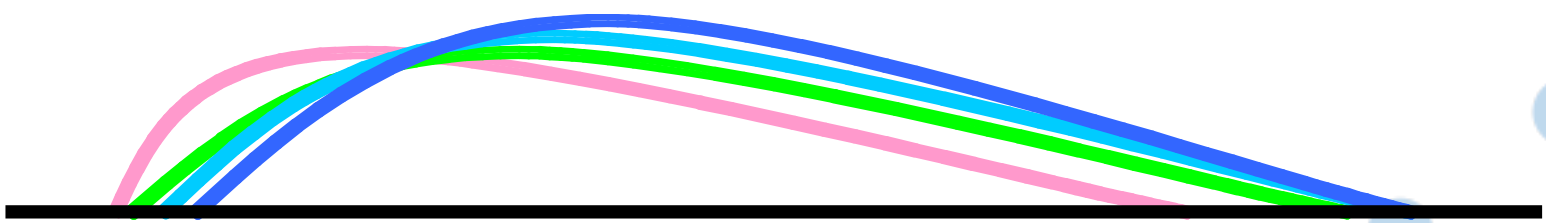
A constant duration leads to a better rhythm

Sequential vs. overlapping development



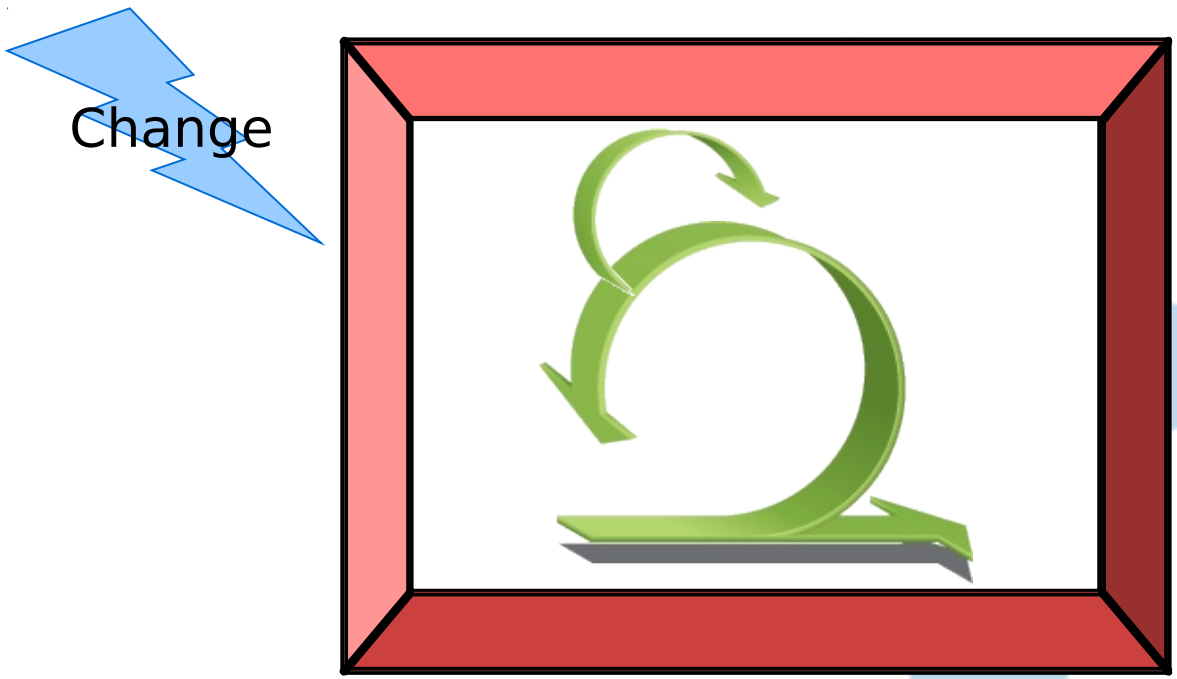
Rather than doing all of one thing at a time...

...Scrum teams do a little of everything all the time



Source: “The New New Product Development Game” by Takeuchi and Nonaka. *Harvard Business Review,* January 1986.

No changes during a sprint



Plan sprint durations around how long you can commit to keeping change out of the sprint

Scrum framework

Roles

Product owner
Scrum Master
Team

Ceremonies

Sprint planning
Sprint review
Sprint retrospective
Daily scrum meeting

Artifacts

Product backlog
Sprint backlog
Burndown charts

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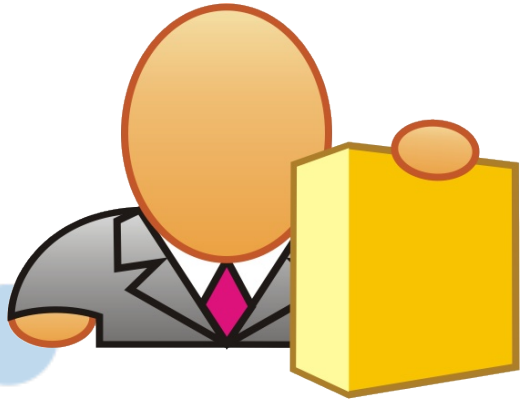
Mountain Goat Software, LLC

Product owner



Define the features of the product

Decide on release date and content

Be responsible for the profitability of the product (ROI)

Prioritize features

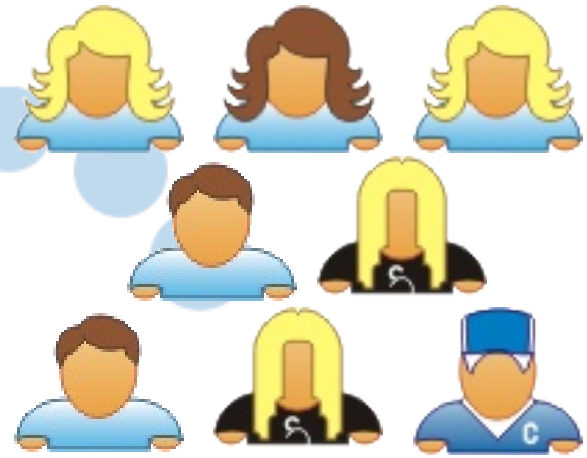
Adjust features and priority every iteration, as needed

Accept or reject work results

The Scrum Master

- Represents management to the project
- Responsible for enacting Scrum values and practices
- Removes impediments
- Ensure that the team is fully functional and productive
- Enable close cooperation across all roles and functions
- Shield the team from external interference

The team



Typically 5-9 people

Cross-functional:

- Programmers, testers, user experience designers, etc.

Members should be full-time

- May be exceptions (e.g., database administrator)

Teams are self-organizing

- Ideally, no titles but rarely a possibility

Membership should change only between sprints

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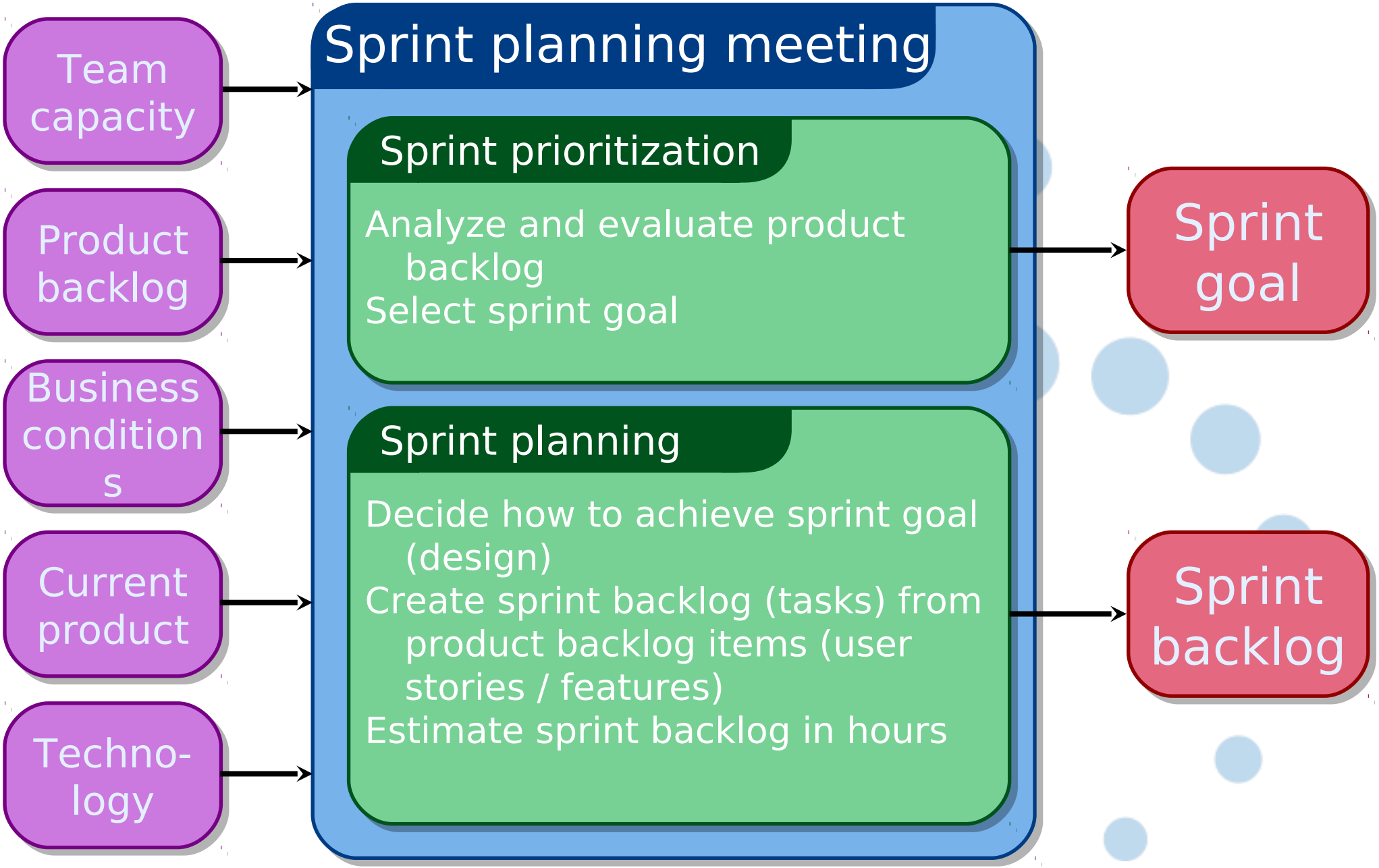
Team capacity
Product backlog
Business conditions
Current product
Techno-logy
Sprint planning meeting
Sprint prioritization
Analyze and evaluate product backlog
Select sprint goal
Sprint planning
Decide how to achieve sprint goal (design)
Create sprint backlog (tasks) from product backlog items (user stories / features)
Estimate sprint backlog in hours
Sprint goal
Sprint backlog

Sprint planning

- Team selects items from the product backlog they can commit to completing
- Sprint backlog is created
  - Tasks are identified and each is estimated (1-16 hours)
  - Collaboratively, not done alone by the ScrumMaster
- High-level design is considered

As a vacation planner, I want to see photos of the hotels.

Code the middle tier (8 hours)
Code the user interface (4)
Write test fixtures (4)
Code the foo class (6)
Update performance tests (4)

The daily scrum

- Parameters
  - Daily
  - 15-minutes
  - Stand-up
- Not for problem solving
  - Whole world is invited
  - Only team members, ScrumMaster, product owner, can talk
- Helps avoid other unnecessary meetings

Everyone answers 3 questions

1. What did you do yesterday?
2. What will you do today?
3. Is anything in your way?

These are *not* status for the Scrum Master

They are commitments in front of peers

The sprint review

Team presents what it accomplished during the sprint

Typically a demo of new features or underlying architecture

Informal

- 2-hour prep time rule
- No slides

Whole team participates

Invite everyone

Sprint retrospective

- Take a look at what is and is not working
- Typically 15–30 minutes
- Done after every sprint
- Whole team participates
  - Scrum Master
  - Product owner
  - Team
  - Possibly customers and others

Start / Stop / Continue

Whole team gathers and discusses what they'd like to:

Start doing

Stop doing

Continue doing

This is just one of many ways to do a sprint retrospective.

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Product backlog

This is the product backlog

- The requirements
- A list of all desired work on the project
- Ideally expressed such that each item has value to the users or customers
- Prioritized by the product owner
- Reprioritize at the start of each sprint

A sample product backlog

Backlog item	Estimate
Allow a guest to make a reservation	3
As a guest, I want to cancel a reservation.	5
As a guest, I want to change the dates of a reservation.	3
As a hotel employee, I can run RevPAR reports (revenue-per-available-room)	8
Improve exception handling	8
…	30
…	50

The sprint goal

A short statement of what the work will be focused on during the sprint

Life Sciences

Support features necessary for population genetics studies.

Database Application

Make the application run on SQL Server in addition to Oracle.

Financial services

Support more technical indicators than company ABC with real-time, streaming data.

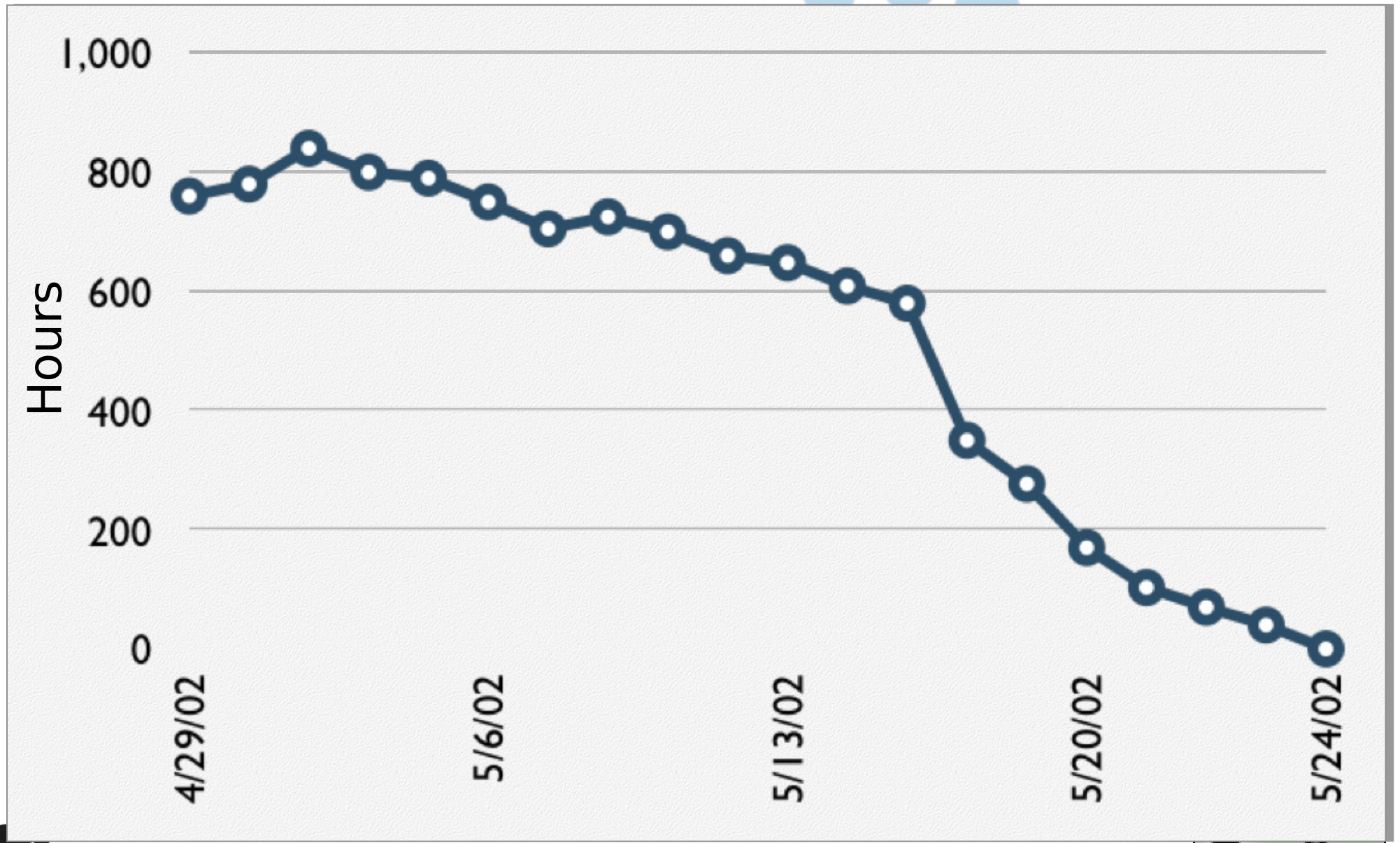
Managing the sprint backlog

- Individuals sign up for work of their own choosing
  - Work is never assigned
- Estimated work remaining is updated daily
- Any team member can add, delete or change the sprint backlog
- Work for the sprint emerges
- If work is unclear, define a sprint backlog item with a larger amount of time and break it down later
- Update work remaining as more becomes known

A sprint backlog

Tasks	Mon	Tues	Wed	Thur	Fri
Code the user interface	8	4	8		
Code the middle tier	16	12	10	4	
Test the middle tier	8	16	16	11	8
Write online help	12				
Write the foo class	8	8	8	8	8
Add error logging			8	4	

A sprint burndown chart



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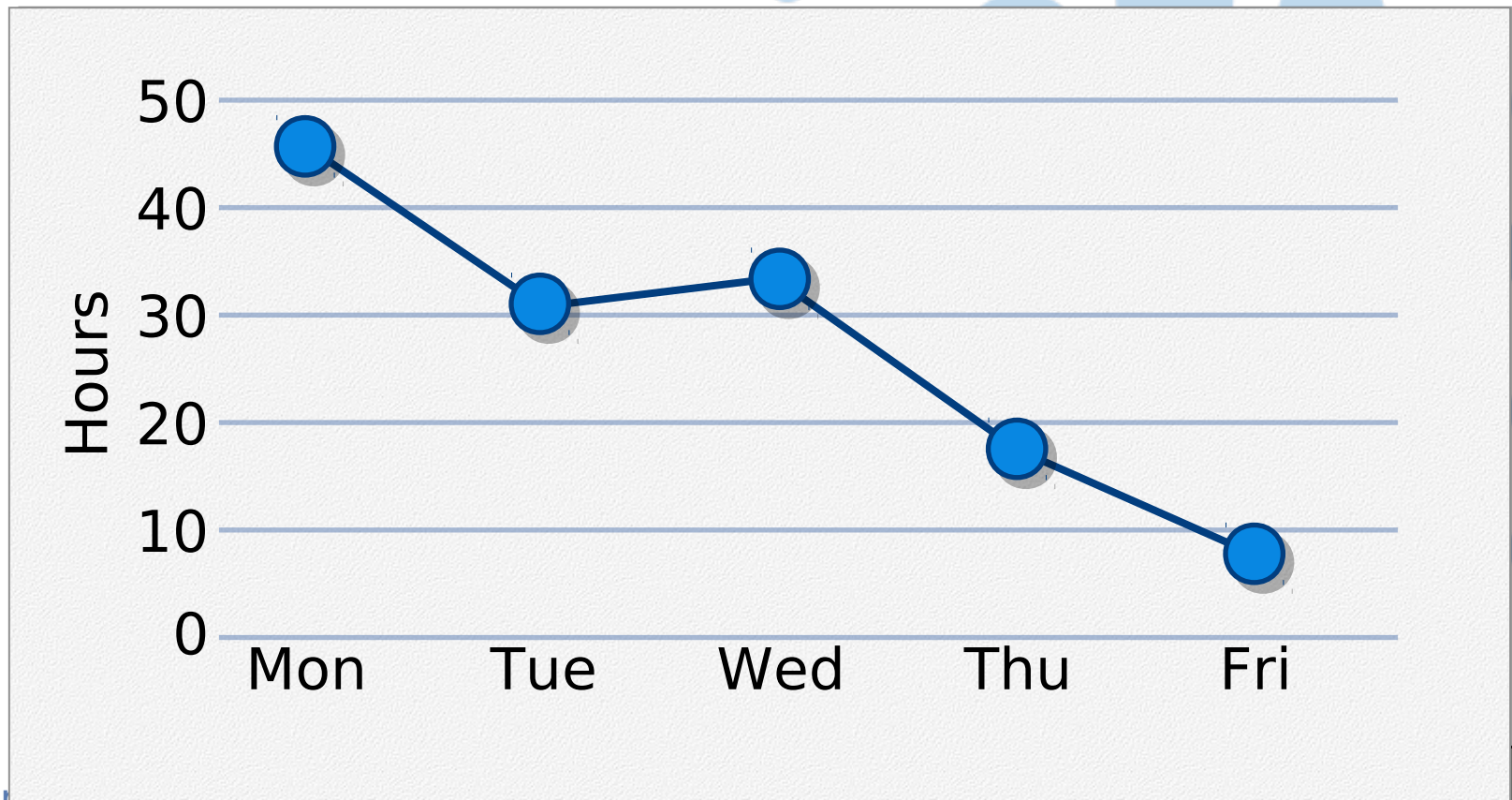
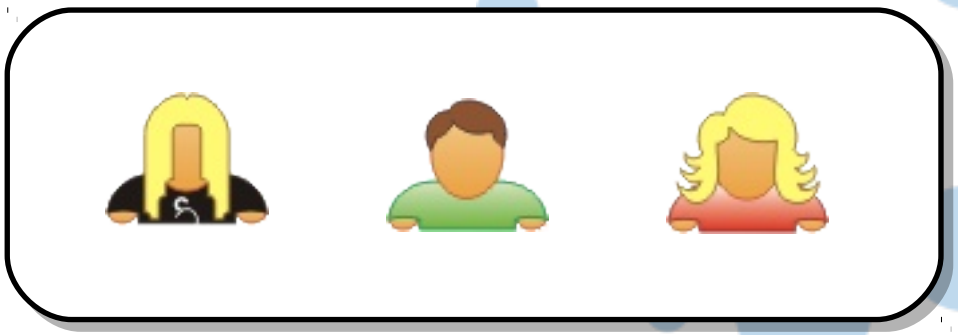
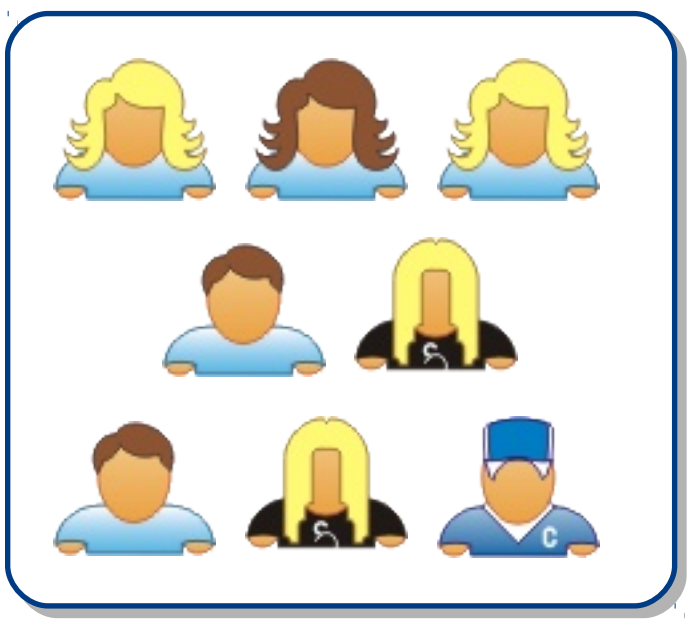


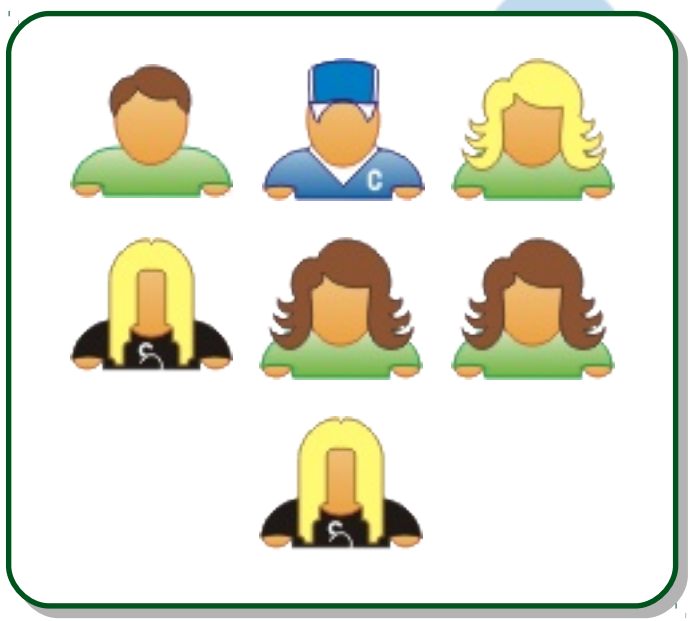
Scalability

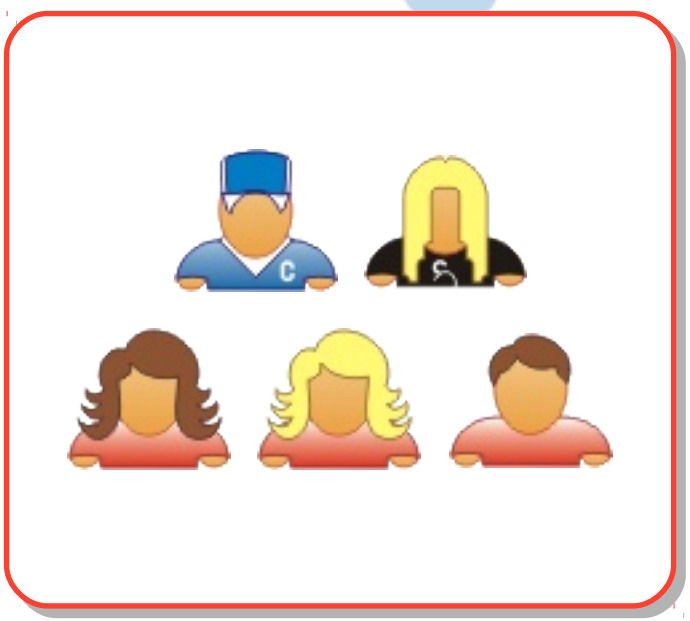
- Typical individual team is 7 ± 2 people
  - Scalability comes from teams of teams
- Factors in scaling
  - Type of application
  - Team size
  - Team dispersion
  - Project duration
- Scrum has been used on multiple 500+ person projects

Scaling through the Scrum of scrums

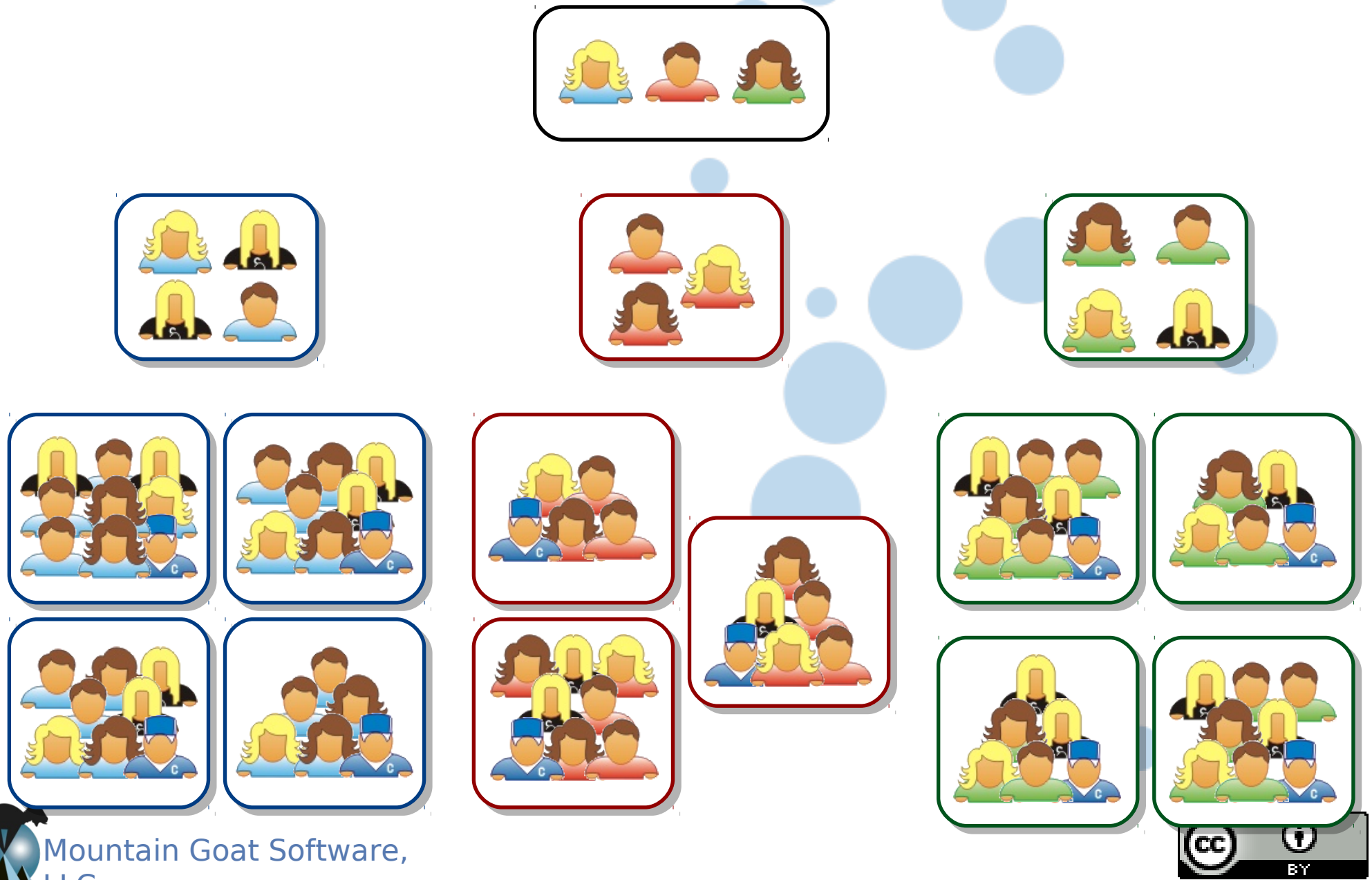








Scrum of scrums of scrums



Where to go next

www.mountaingoatsoftware.com/scrum

www.scrumalliance.org

www.controlchaos.com

scrumdevelopment@yahoogroups.com

A Scrum reading list

Agile and Iterative Development: A Manager's Guide by Craig Larman

Agile Estimating and Planning by Mike Cohn

Agile Project Management with Scrum by Ken Schwaber

Agile Retrospectives by Esther Derby and Diana Larsen

Agile Software Development Ecosystems by Jim Highsmith

Agile Software Development with Scrum by Ken Schwaber and Mike Beedle

Scrum and The Enterprise by Ken Schwaber

User Stories Applied for Agile Software Development by Mike Cohn

Lots of weekly articles at www.scrumalliance.org

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