An ISC Introduction to Agile and Scrum

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All Hands, 2010

Scrum? Rugby? Is this an HR policy violation? What is she on about??

"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.

What does this have to do with software development?

Scrum has been used by:

- Apple
- Yahoo!
- Google
- Electronic Arts
- IBM
- Lockheed Martin
- Philips
- Adobe

- Time Warner
- Turner Broadcasting
- CIRA
- Siemens
- Nokia
- Intuit
- Sony
- and many others

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Scrum has been used for:

- Commercial software
- Open Source software
- Contract development
- Embedded systems
- 24x7 systems with 99.999% uptime requirement
- The joint strike fighter jet

- Video game development
- Satellite-control software
- Network switching applications
- ISV applications
- Some of the largest applications in use

Characteristics

- Self-organizing teams

- Product progresses in a series of 2-4 week "sprints" which roll into a release

- Requirements are captured as items in a list of "product backlog"

- No specific engineering practices prescribed by Scrum, but quality mandates apply

- One of the "agile processes"

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The Agile Manifesto

a statement of values

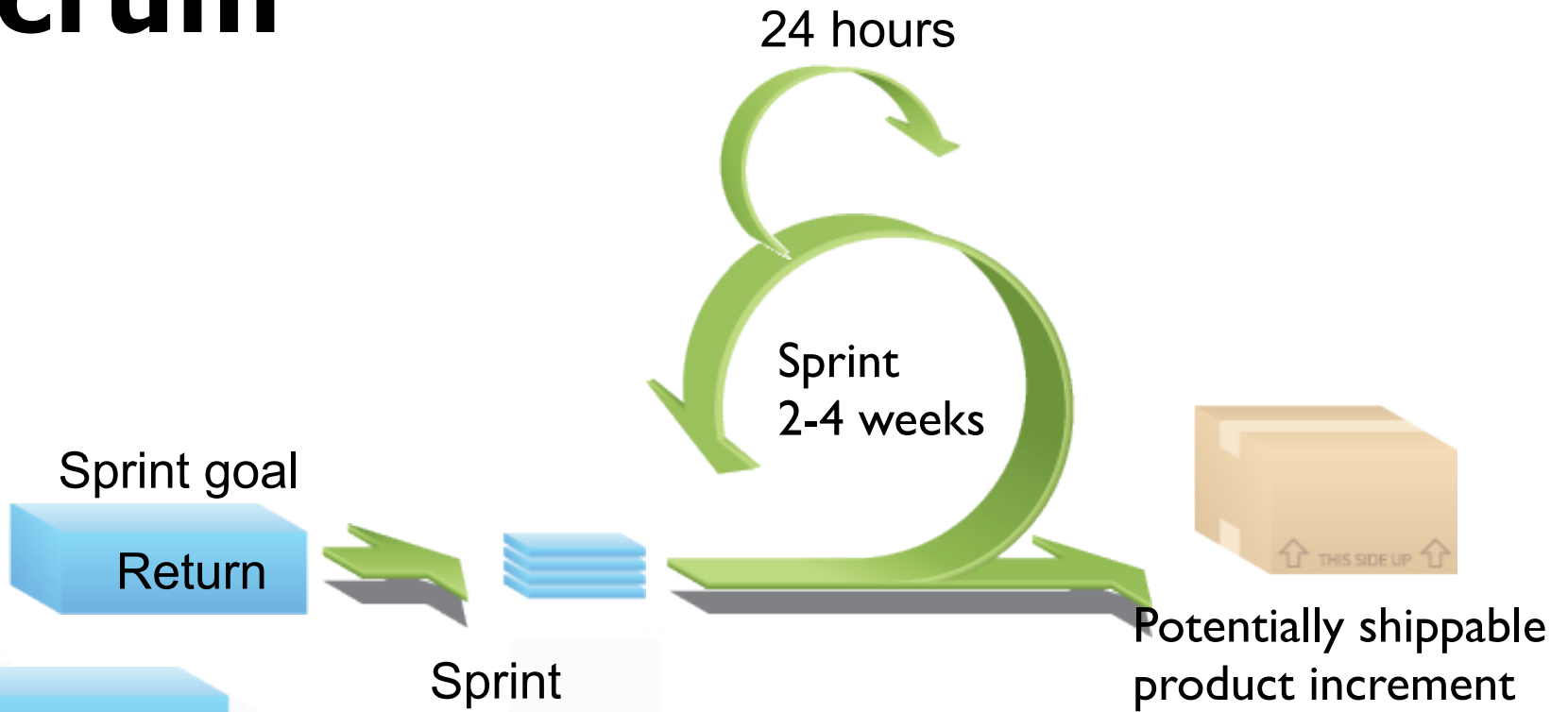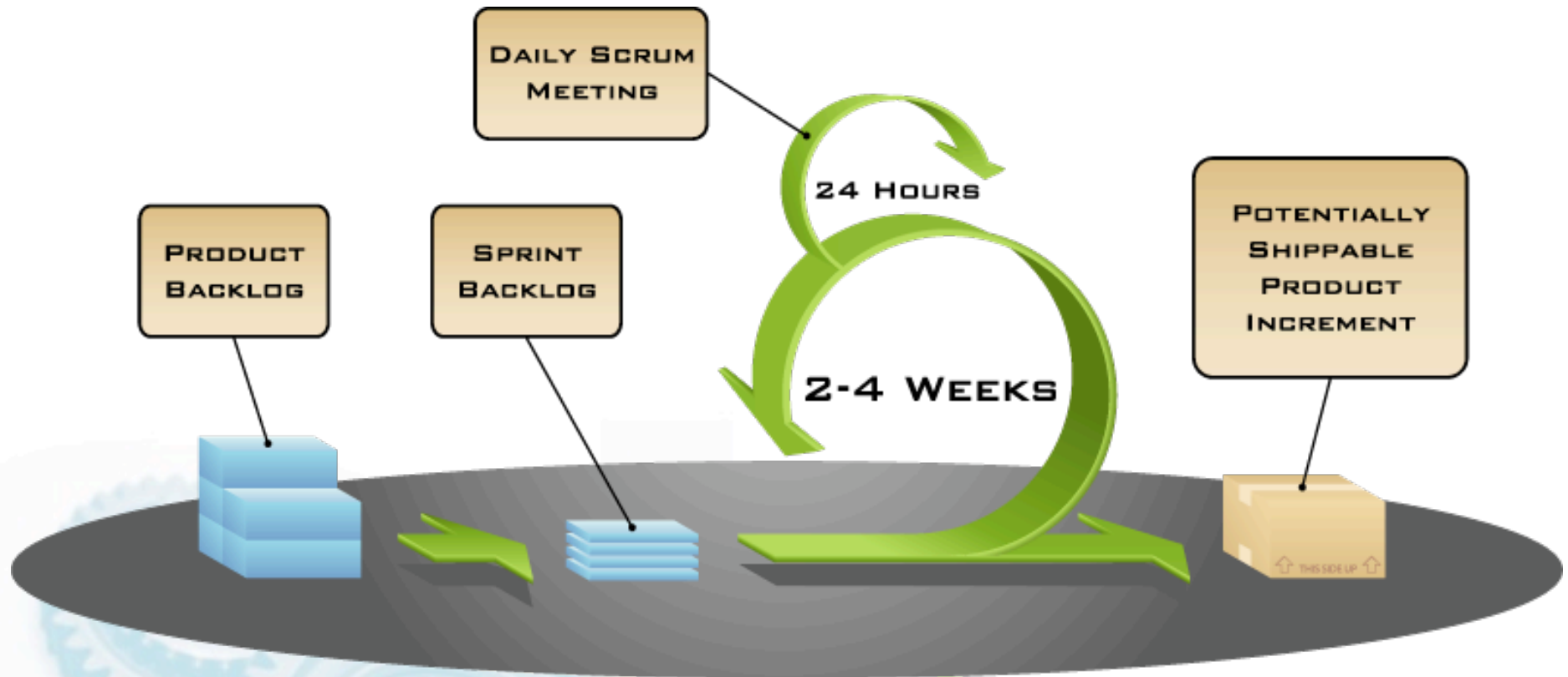|		
Individuals and interactions	over	Process and tools
Working software	over	Comprehensive documentation
Customer collaboration	over	Contract negotiation
Responding to change	over	Following a plan

While we value the things on the right, we value the things on the left more.
Source: www.agilemanifesto.org

Scrum

24 hours

Sprint
2-4 weeks

Sprint goal

Return

Sprint
backlog

Cancel

Coupons

Gift wrap

Coupons

Product
backlog

Potentially shippable
product increment

THIS SIDE UP

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Putting it all together

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Sprints

- Scrum projects make progress in a series of "sprints"

    – Analogous to Extreme Programming iterations

- Typical duration is 2–4 weeks or a calendar month at most

- A constant duration leads to a better rhythm

- Product is designed, coded, and tested during the sprint using the team Definition of Done

- Scope, resources, and number of sprints in a release can change but Quality is constant.

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Sequential vs. overlapping development
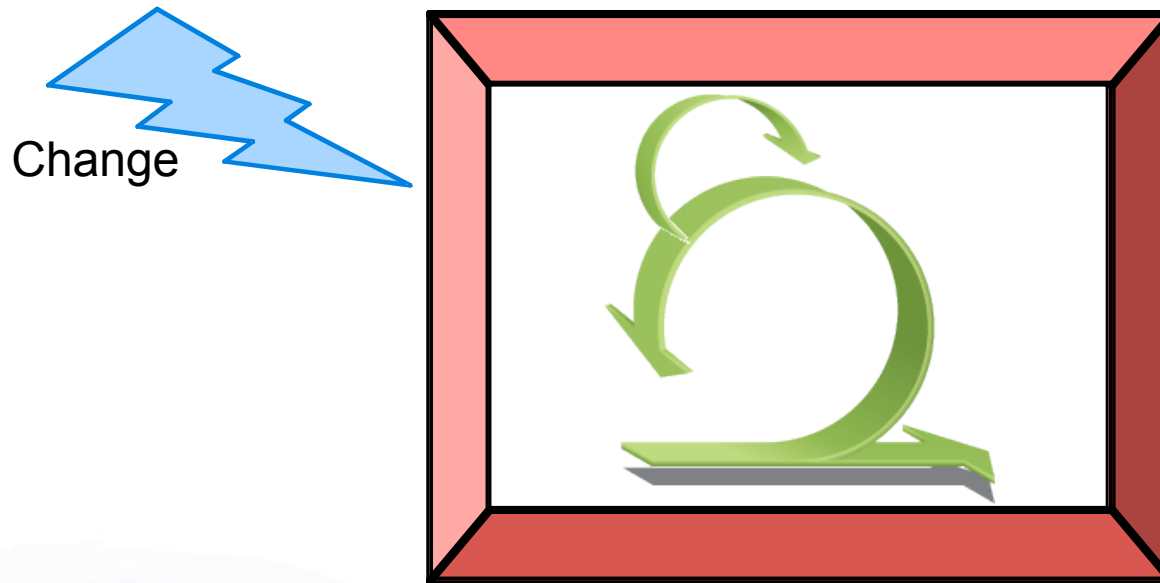
Requirements | Design | Code | Test

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

Change

- Plan sprint durations around how long we can commit to keeping change out of the sprint*

Scrum framework

Roles
- Product owner
- ScrumMaster
- Team

Ceremonies
- Sprint planning
- Sprint review
- Sprint retrospective
- Daily scrum meeting

Artifacts
- Product backlog
- Sprint backlog
- Burndown charts

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Scrum framework

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Product owner

- Define the features of the product

- Decide on release date and content

- Ensure that the product contains the features that drive value for forum and support customers (what the business needs for revenue)

- Ensure product direction, drives relevance, promotes public benefit, other company values

- Prioritize features according to same

- Adjust features and priority every iteration, as needed

- Drives the *what* of the project

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The ScrumMaster

- 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 interferences

- Drives the *how* of the project

The team

- Typically 5-9 people
- Cross-functional:
  - Programmers, testers, documentation
- Members should be full-time
  - May be exceptions
- Teams are self-organizing
- Membership should change only between sprints
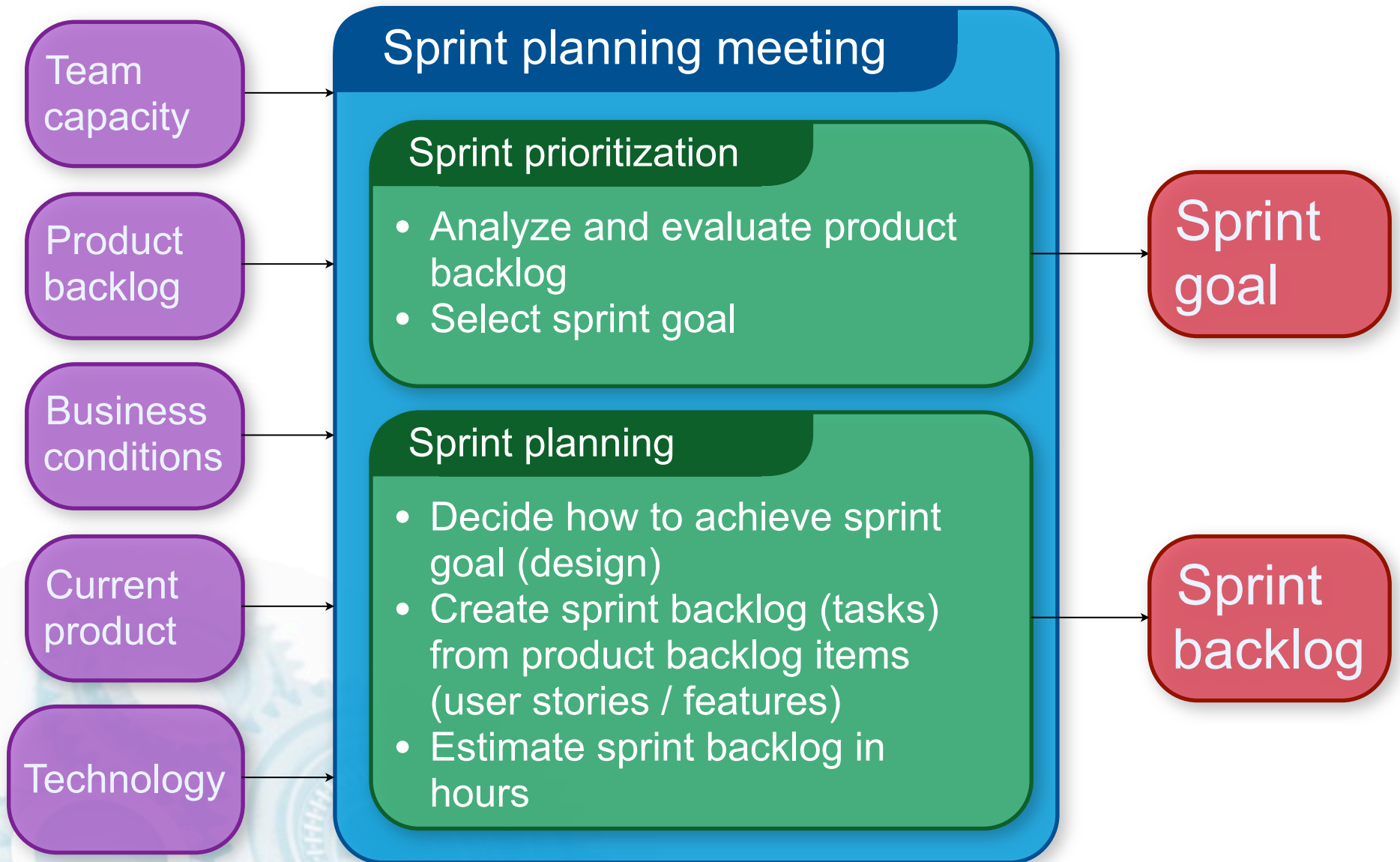
Scrum framework

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Sprint planning meeting

Inputs:
- Team capacity
- Product backlog
- Business conditions
- Current product
- Technology

Sprint prioritization

- Analyze and evaluate product backlog
- Select sprint goal

Output: 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

Output: 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
  - Collaboratively, not done alone by the ScrumMaster

- High-level design is considered

As a non dns-expert sysadmin, I want to be able to determine the specific nature of a config file problem based a log error
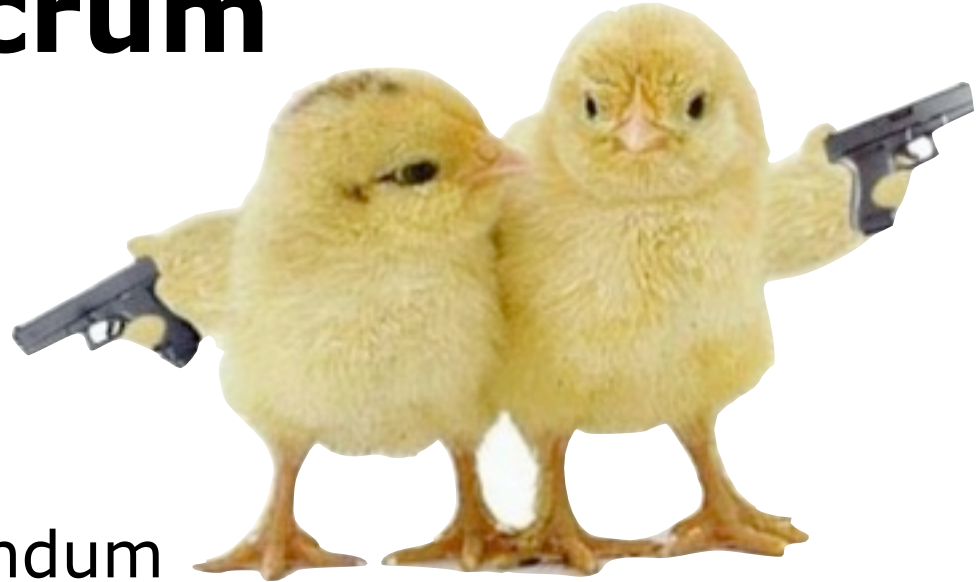
Tasks:
- Write unit tests for changes
- Specify error cases
Edit logging _____?

The daily scrum

- Parameters
  - Daily
  - 15 minutes
  - ISC Jabber Addendum
- Not for problem solving
  - Whole world is invited
  - Only team members, ScrumMaster, product owner, can talk (chickens and pigs)
- 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 ScrumMaster
  - They are commitments in front of peers

The sprint review

- Team presents what it accomplished during the sprint

- A demo of new features or underlying architecture

- Informal
  - 2-hour prep time rule
  - No slides

- Whole team participates

- Accept results or return stories to the next sprint

- Invite the world (including specific customers or sponsors)

- Review of the *product*

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The Sprint retrospective

- Take a look at what is and is not working
- Typically 15–30 minutes
- Done after every sprint
- Whole team participates
  - ScrumMaster
  - Product owner
  - Team
  - Possibly customers and others
  - Review of the *process*

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Start / Stop / Continue

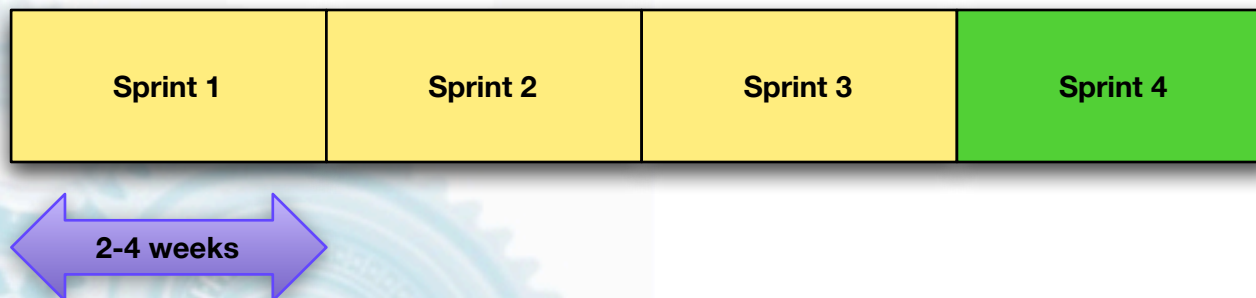- Whole team gathers and discusses what they'd like to:

Start doing

Stop doing

Continue doing

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

A chain of sprints

- A release can be one or several sprints.

- Often several short (2 week) sprints are followed by a "hardening" sprint and then a release.

Sprint 1	Sprint 2	Sprint 3	Sprint 4

2-4 weeks

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Scrum framework

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Product backlog

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This is the product backlog

- The requirements
- A list of all desired work on the project (input from anyone and everyone)
- Ideally expressed such that each item has value to the users or customers of the product
- Prioritized by the product owner
- Reprioritized 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	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-	8
Improve exception handling	8
…	30
…	50

The sprint goal

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

Resolver

Build initial infrastructure and design for the resolver

Database

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

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 as needed

- 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

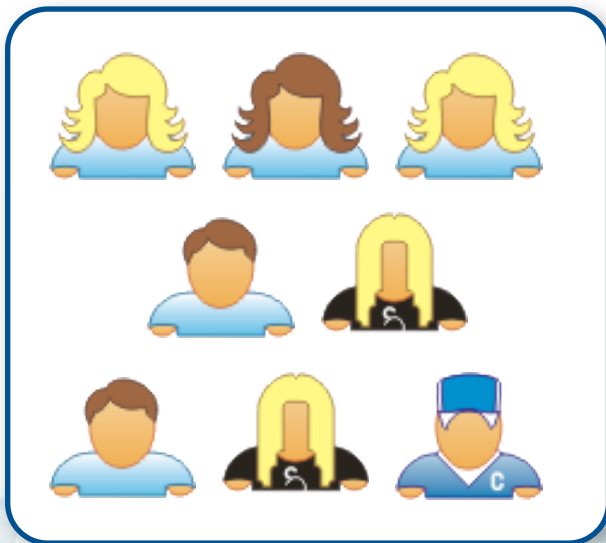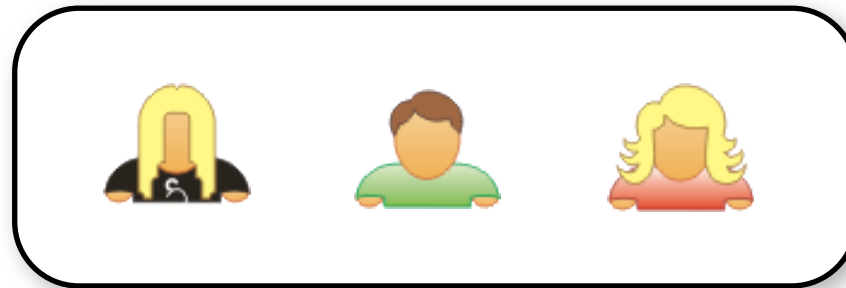- Update work remaining as more becomes known

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A sprint backlog

| Tasks	Mon	Tue	We	Thu	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
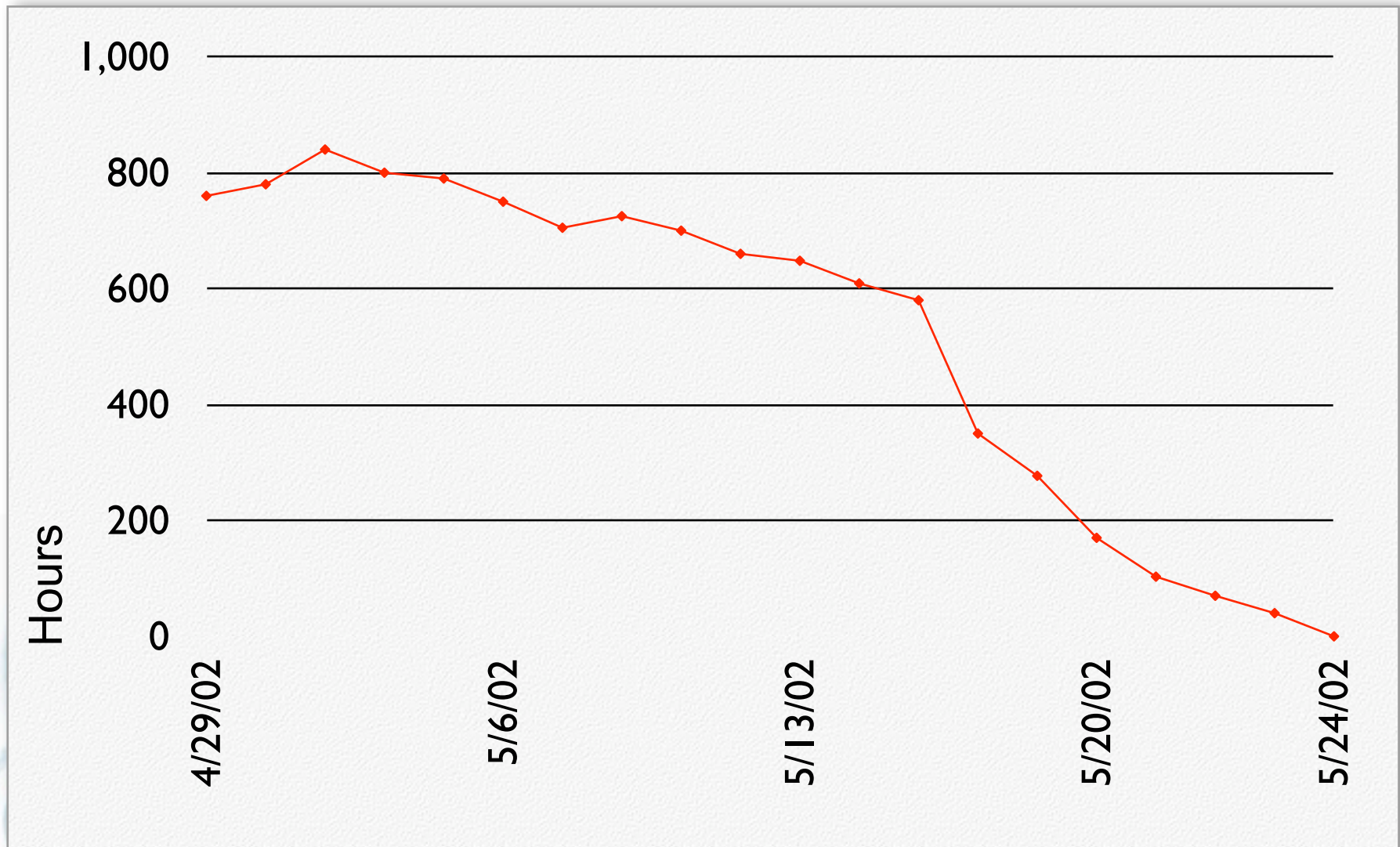
Scaling through the Scrum of scrums
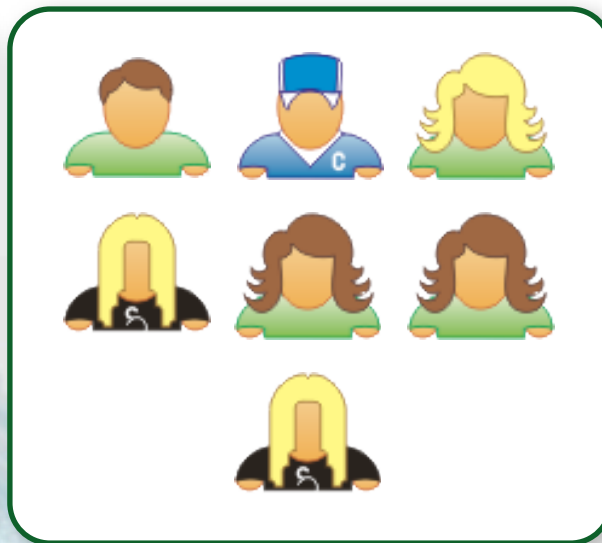
This might hurt a little

- doing it by the book
- keeping sprints the same length
- keeping change out of sprints
- expressing requirements as user stories
- quality is constant
  - definition of done

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But it might be worth it
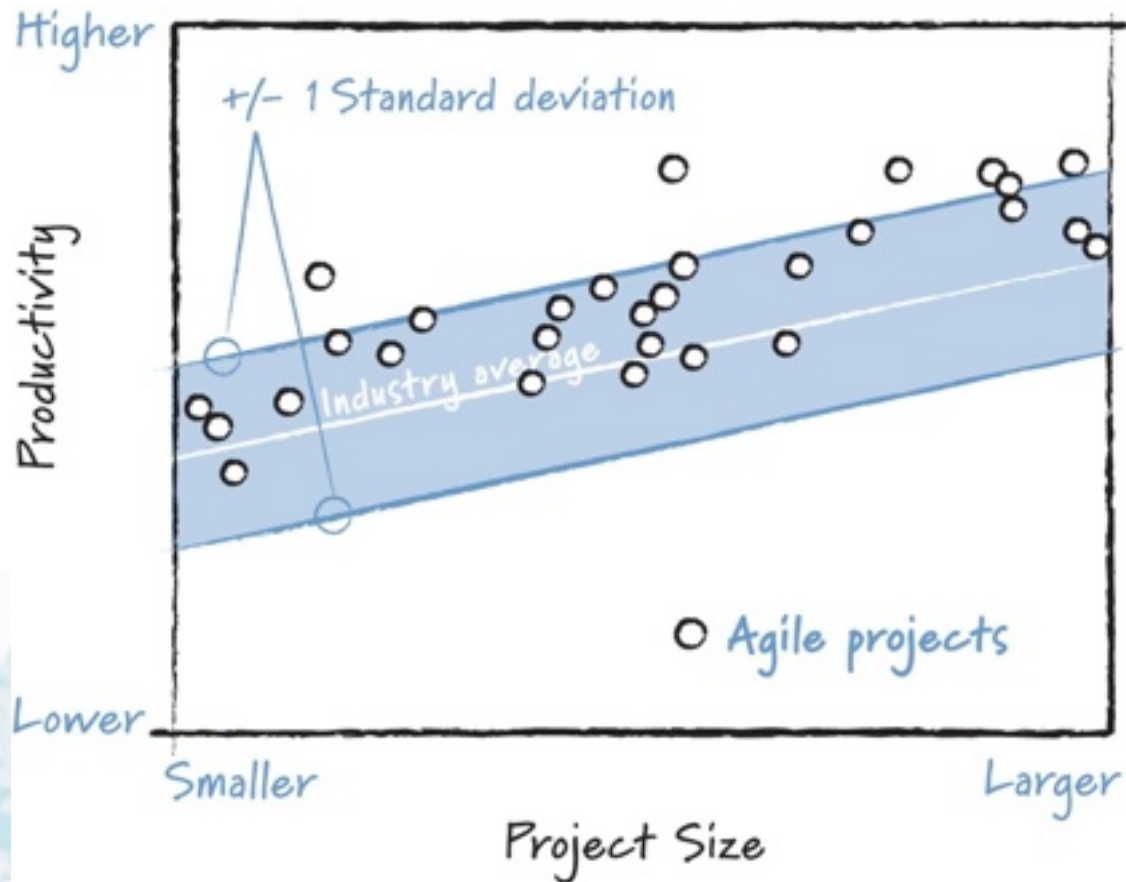
Agile projects are 16% more productive at a statistically significant level of confidence.

Source: Mah 2008.

Higher job satisfaction

- Fifteen months after adopting Scrum, 86% of Salesforce.com employees were having a "good time" or the "best time"
  - Only 40% said that before adopting Scrum
  - 92% would recommend agile to others
- Perhaps employees like agile because there's 2/3rds less overtime according to University of Calgary research (sustainable pace)

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Faster time to market

- VersionOne study found
  - 64% said time to market improved
  - Another 23% said it was significantly improved
- Michael Mah found
  - Agile projects have a 37% faster time to market at a statistically significant level of confidence

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VersionOne study

- Quality
  - 44% said quality had improved
  - Another 24% said quality improved significantly
- Fewer defects
  - 84% said defects had gone down by 10% or more
  - 30% said defects were down by 25% or more

Where to go next

- Online:
  - www.mountaingoatsoftware.com/scrum
  - www.scrumalliance.org
  - www.controlchaos.com
  - scrumdevelopment@yahoogroups.com

A Scrum reading list

- _Succeeding with Agile_ by Mike Cohn

- _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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