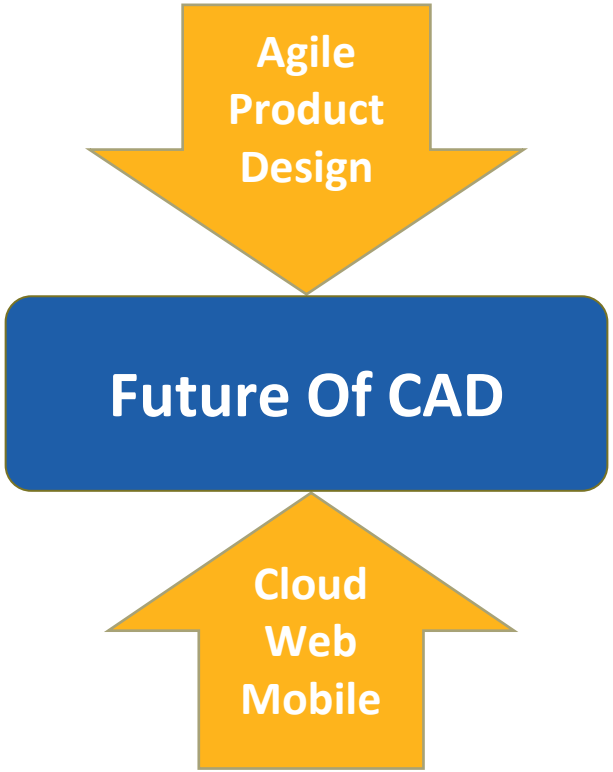
The Move To Agile Design: New Cloud CAD Tools Needed

New design process needs new design tools

Onshape

Agile Process + Cloud = Future Of CAD/CAM/CAE



How are our users working differently as they move to Agile Process?

What do we, the CAD/CAM/CAE industry, need to do about it?

Where does component technology fit in the new world of cloud/web/mobile?

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Agile Design Needs New CAD Tools

- Users moving to Agile Process for more speed and innovation
- Traditional installed file-based CAD architecture not good for Agile
- Full-cloud architecture perfect for Agile
- Siemens components are perfect for full-cloud architectures

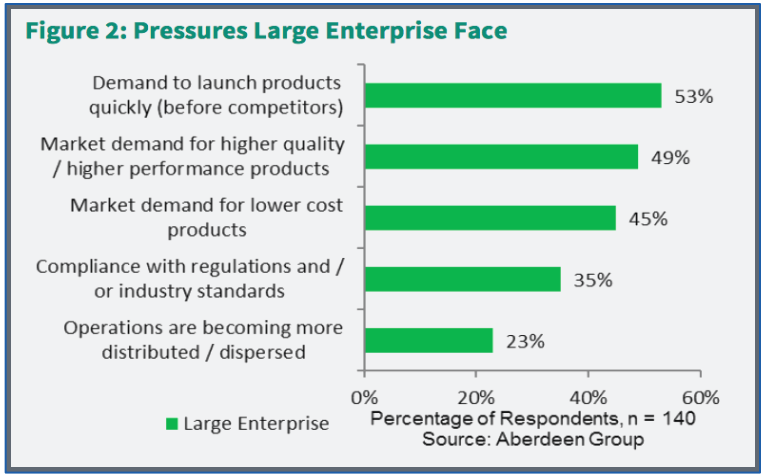
Businesses need more
speed and innovation
in product design

Product Design Speed Is A Top Priority

*"Every year for the past 5 years, **Time** has been the #1 Pressure identified by surveyed companies looking to develop more successful products…"*

Source: Aberdeen Group

ABERDEEN GROUP
A Harte Hanks Company



The Industry has Spoken

79% of companies said **innovation**
is the **#1, 2, or 3 priority** at their company

Source: Boston Consulting Group (BCG) 2015 survey

BCG

Collaboration and Connection are Obstacles

Top product design obstacles are:

1. Lack of collaboration
2. Disconnected processes
3. Change management

Source: Aberdeen Group

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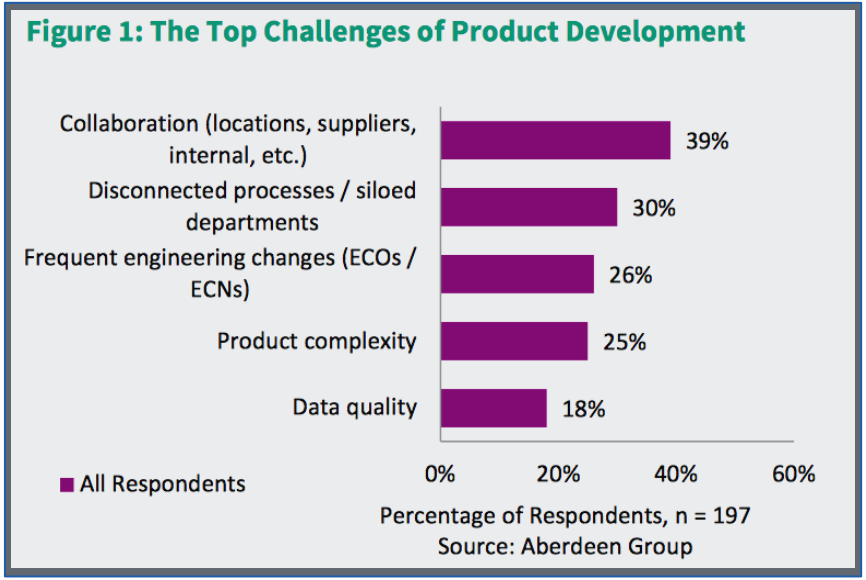
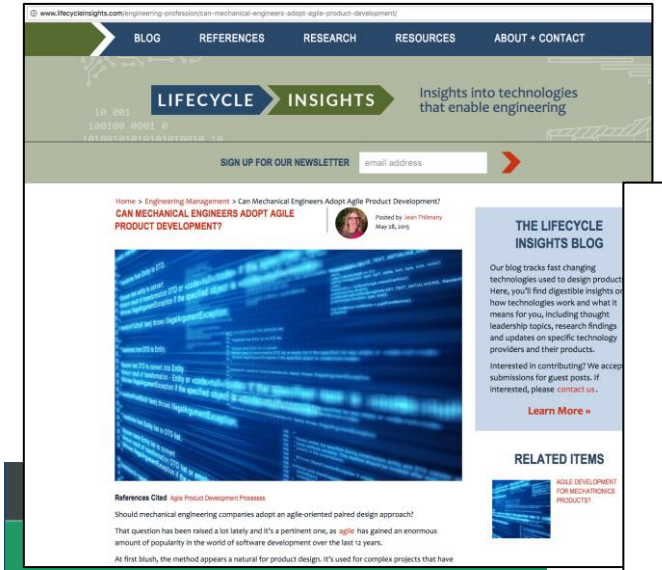
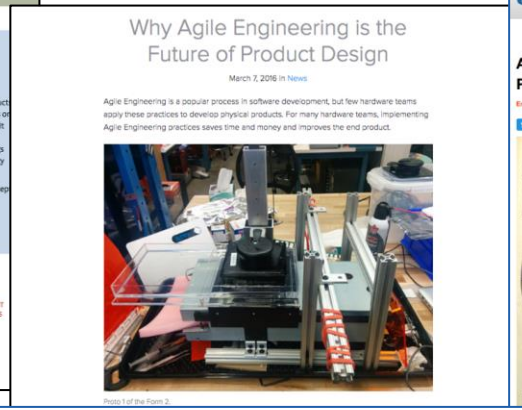


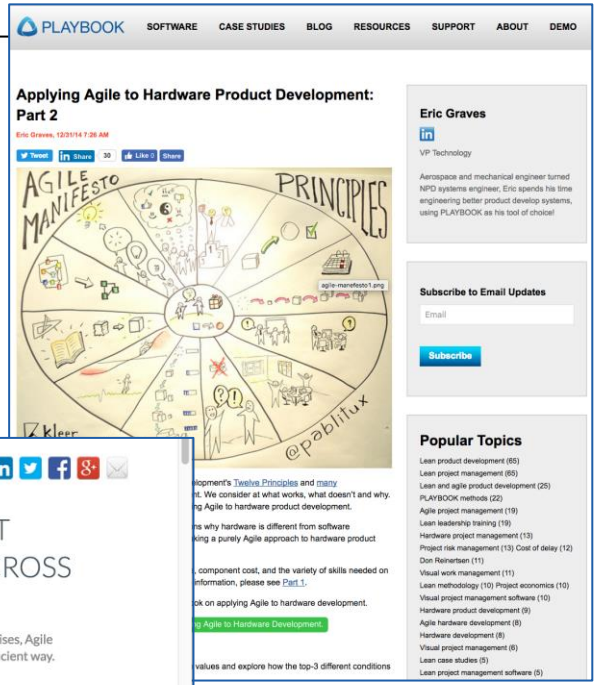
Businesses are moving to an
Agile Design Process
for product design

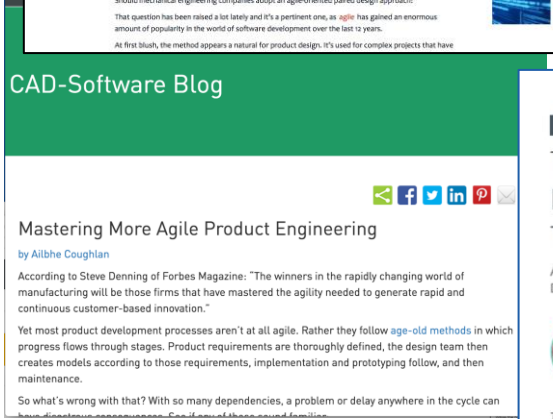


Forbes

According to Steve Denning of Forbes Magazine: "The winners in the rapidly changing world of manufacturing will be those firms that have mastered the agility needed to generate rapid and continuous customer-based innovation."







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Traditional Design Process	Agile Design Process
Serial processes, checkout, locking	**Parallel** processes, concurrent work, collaboration

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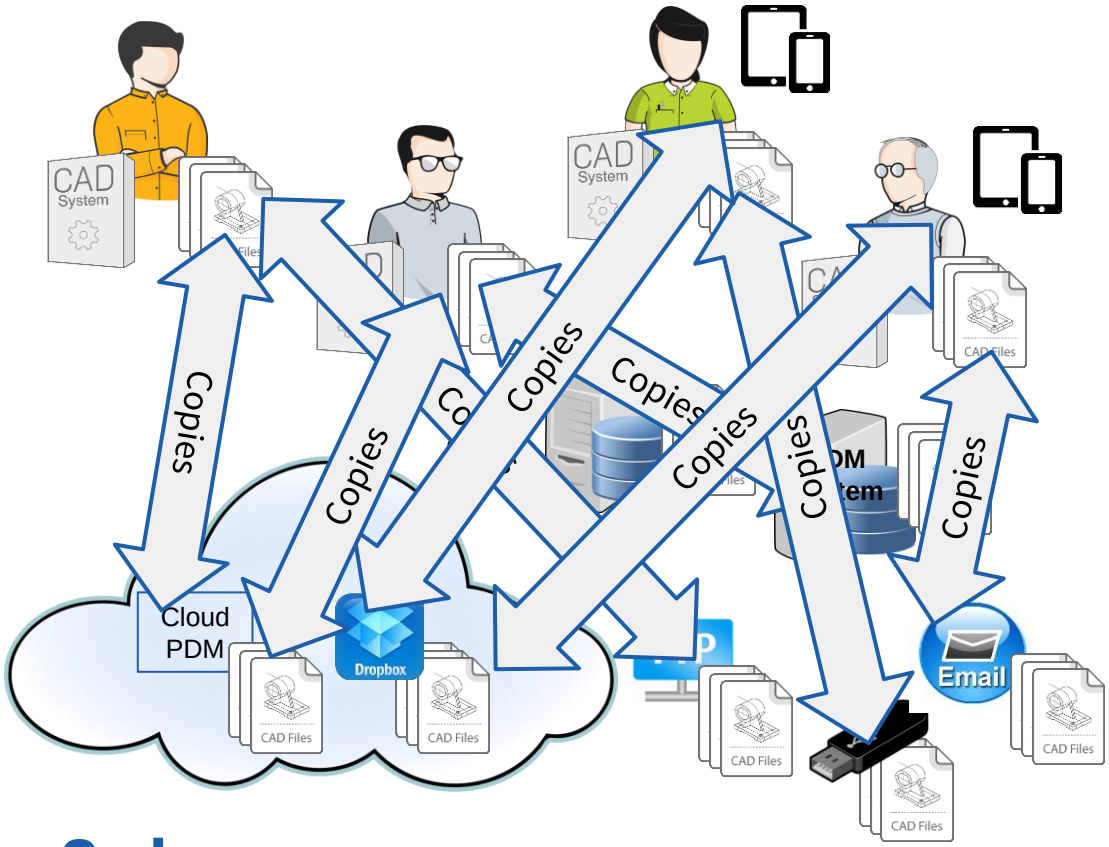
Management receives **out-of-date monthly reports**	Management has continuous access to **real-time analytics**

Installed File-Based
CAD and PDM Architecture
works against Agile Design

File-based CAD and PDM Unsuited For Agile



Hard to Deploy To Agile Team

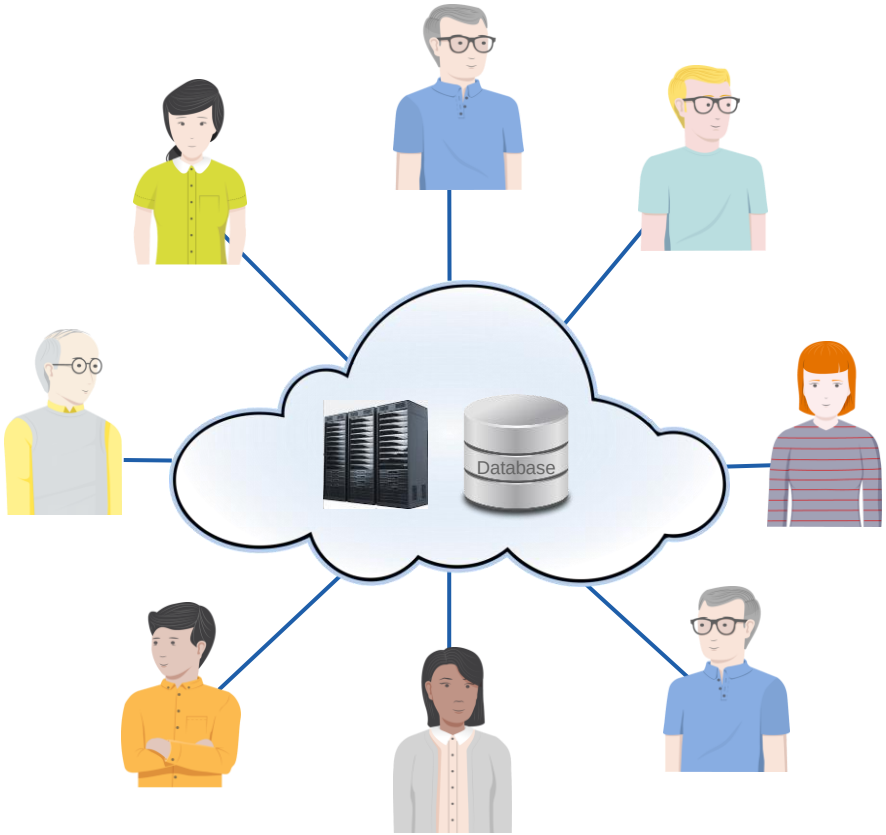
- Downloads, installs, updates, service packs
- Expensive license codes and servers
- Is everyone on the same CAD software version?

File Copies Force Non-Agile Workflow

- Where's the latest version?
- Are you overwriting someone else's work?
- Someone else overwriting your work?
- Checkout and locking hassles
- Slows teams down
- Discourages innovative experiments

Agile design
requires a new
full-cloud database
CAD architecture

A New Generation: Full-Cloud Database Architecture



CAD/CAM/CAE software and data live in one place in the cloud

No downloads, no installs

No files, no copies

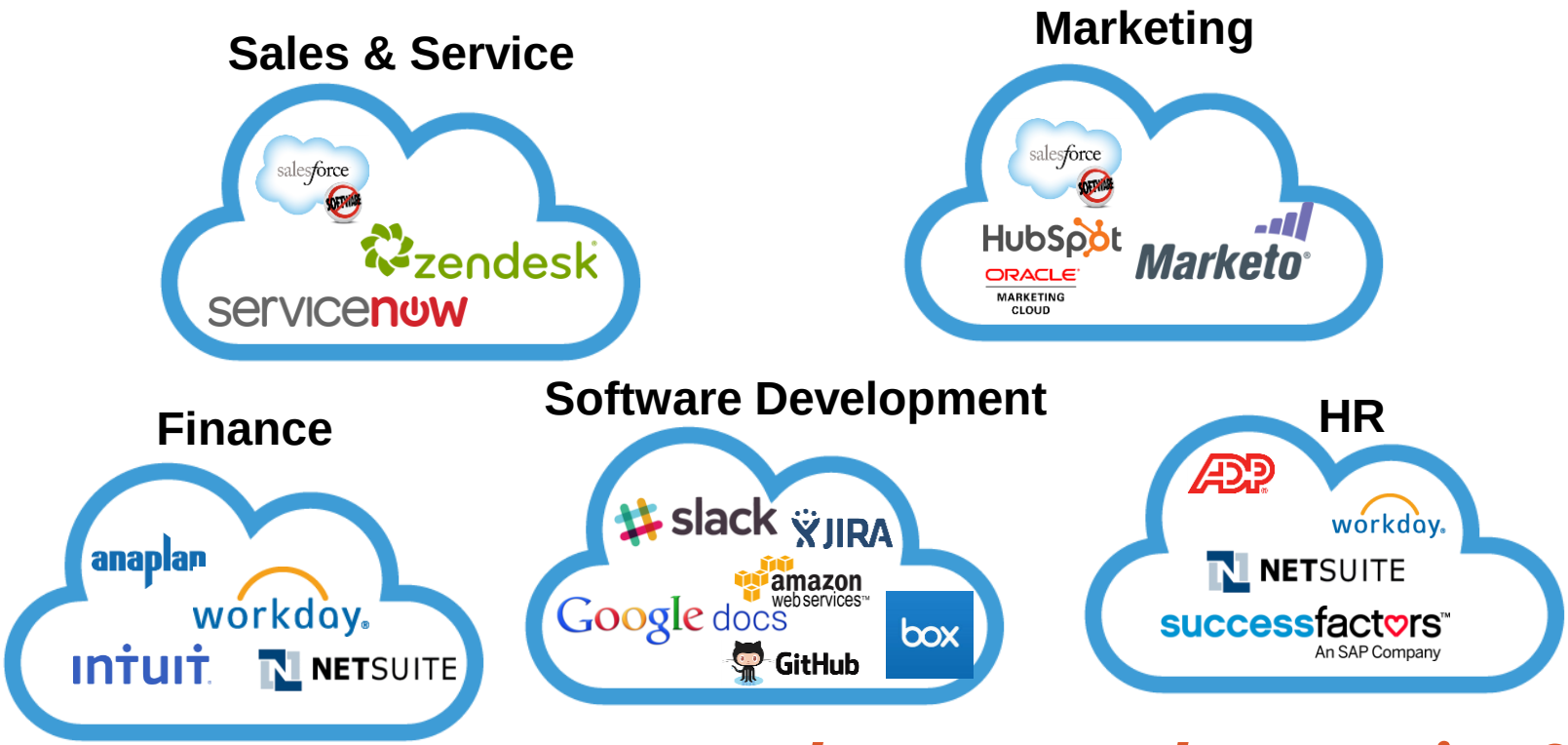
Real-time access for everyone in the enterprise

How we all should build the future

Siemens components work great in this architecture

Onshape

Full-cloud Architectures Revolutionizing Other Disciplines



Why not Product Design?

Some Said “It’ll never work”

“What about performance?”
“Big companies will never trust it”
“It’ll never have all the functionality”
“You can’t build it with component technology”

Source?

Comments in **1994** about **SolidWorks** on **Windows**

Comments in **2013** about **Onshape** on **Cloud/web/mobile**

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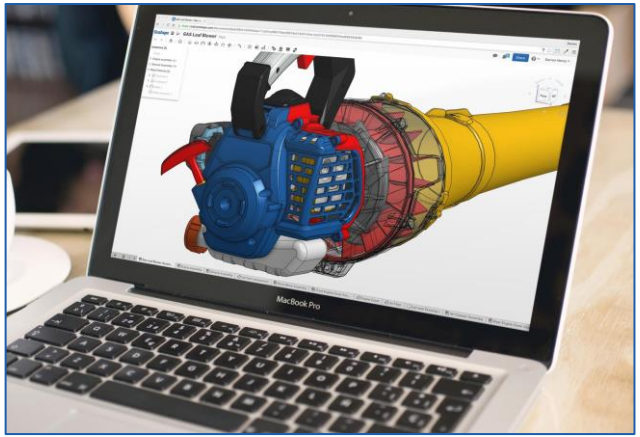
Three Agile Benefits Of Full-Cloud Architecture

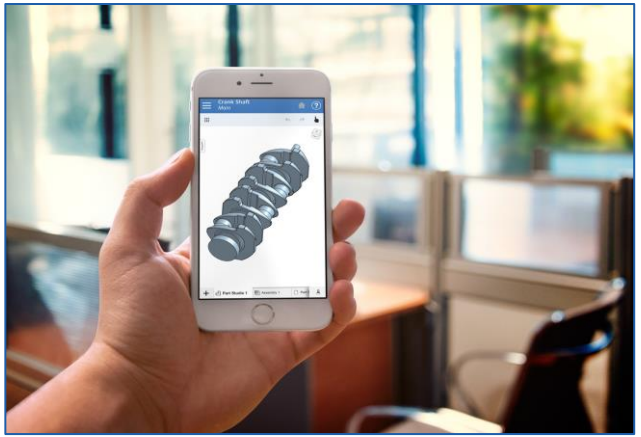
- Real-time deployment
  - **Instantly** deploy to **all** team members the **moment** they join the team on **all** of their devices
  - Instantly **de-provision** when members leave the team
  - No lingering “offline” copies
- Real-time collaboration and data management
  - When **anyone**, **anywhere** makes **any** edit…
  - …**everyone**, **everywhere** can **instantly** see it
  - No more locking or checkout or syncing
- Real-time analytics and controls
  - Up-to-the-moment **data** and **controls** for managing Agile teams

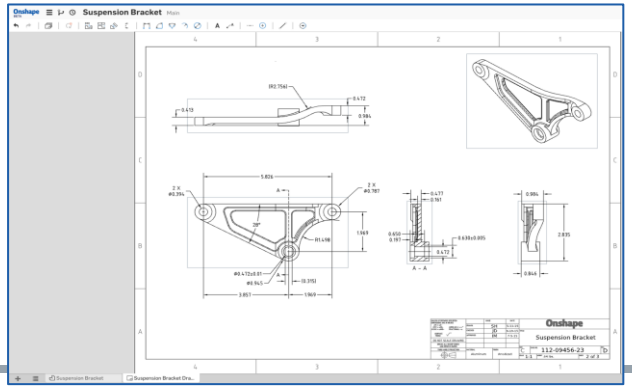
Onshape Inc.

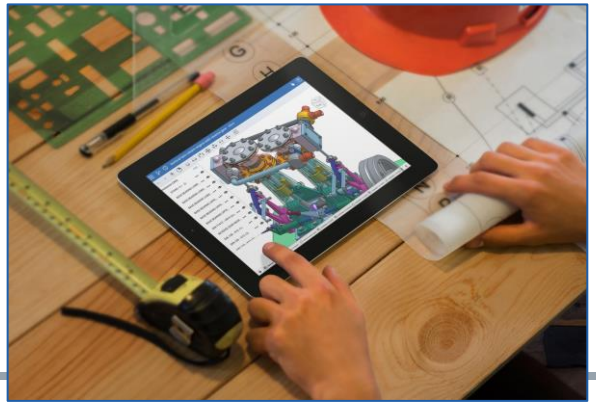
- Only company 100% focused on cloud and mobile CAD
- 1,000s of companies designing with Onshape
  - Consumer products, machinery, medical, and many other industries
- Founded in November, 2012
  - Based in Cambridge, MA
  - 120 employees
  - Original SolidWorks team
  - Plus cloud, mobile and datacenter leaders

Onshape: Full-cloud CAD









Onshape Team:
A Happy 23-Year Siemens Components Customer

- **1993**: SolidWorks Licenses **Parasolid** and **D-Cubed**

- **2012**: Onshape Licenses **Parasolid** and **D-Cubed 2D and 3D DCM**
  - Yes we looked at everything
  - Parasolid and D Cubed proven to work great for full-cloud architecture

- **2016**: Onshape Licenses **Convergent Modeling** and **JT Open Toolkit**

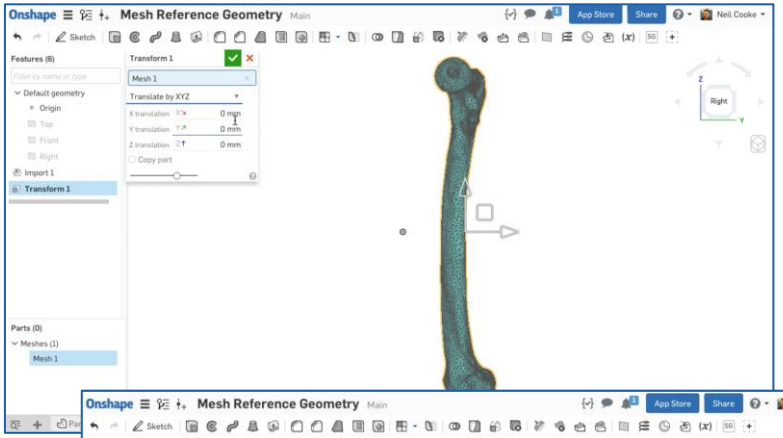
Why Onshape Chose Siemens Components

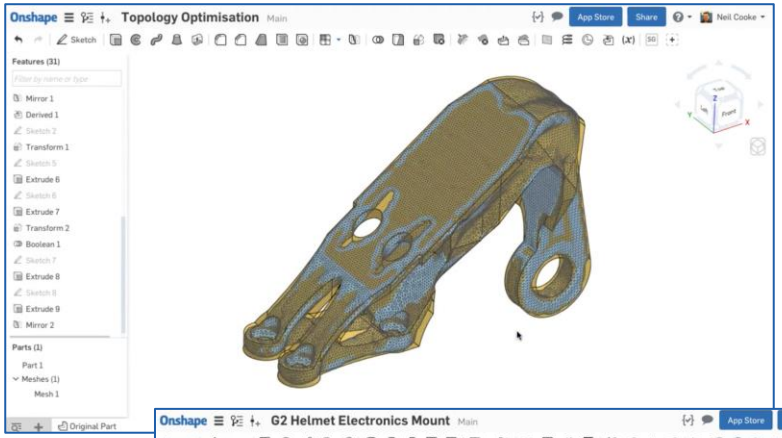
- Technical excellence
  - Powerful, accurate, reliable, performant
- Great support
- Continuous improvement and vision
- Commitment to components business and openness
- Works great in full-cloud architecture

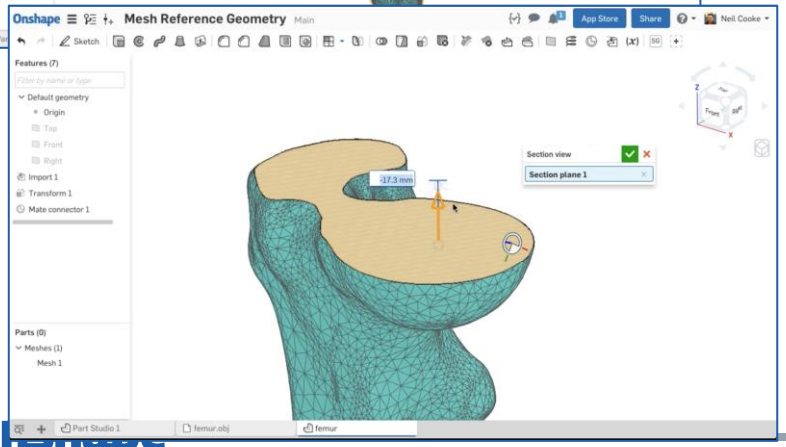
Convergent Modeling Is Huge

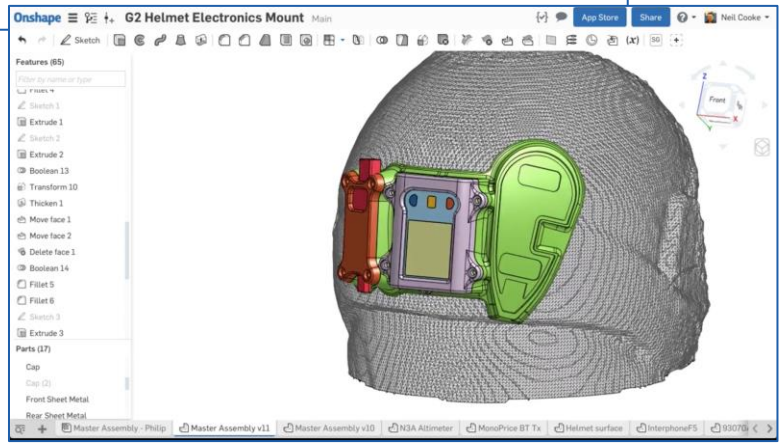
- An Awesome Parasolid Vision
  - Make facet data ‘first-class’ alongside BRep data
  - Unified set of modeling functions
  - No ‘conversions’ or ‘add-ons’
  - **Wow**
- Why facets?
  - **3D printing** has increased facet popularity and “currency”
  - **Generative design** and **shape optimization** produce facet models
  - **Scanned** facet data becoming part of the design process
    - Reverse engineering, medical, dental, architectural, as-built, inspection, art
  - **Entertainment** (games, movies, etc) 3D content

Parasolid Convergent Modeling Released in Onshape September 2016










Thank You Siemens!
Onshape