



Software Product Management

Ongoing product management

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Introduction



- A new set of activities begin after product release
- Some examples:
 - Resolving customer issues
 - Improving the product – UX, performance, bug fixes, security fix
 - Keep adding value with relevant features – whole product
 - Adapt to changes in user needs, technology, competition
 - Leverage the product – Open source, product line, cater to new segments

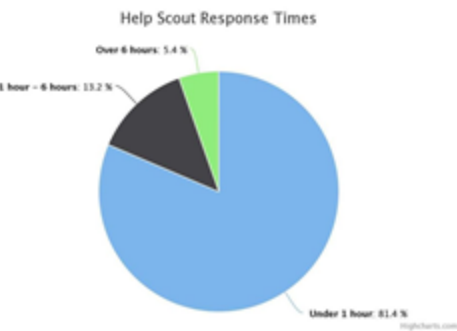
Customer support



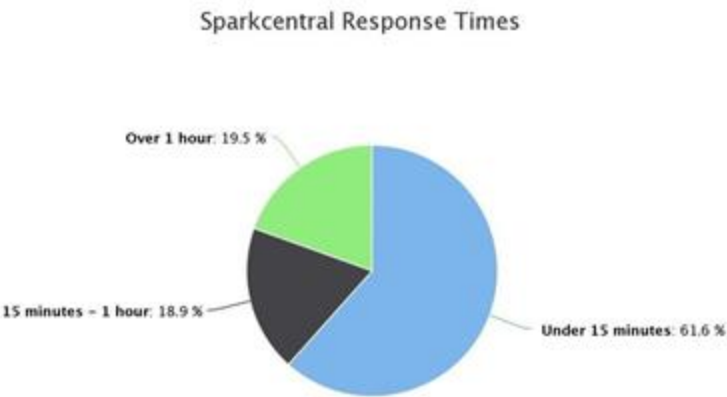
- Quick and effective customer service is paramount. How?
- Make the product so simple to use and so high in quality that support is a non-issue
- Support team should be sufficiently staffed & knowledgeable
- Recruit people who have a high degree of empathy who feel the pain of the customer
- Empower staff to take decisions, example to give refunds where genuine
- Examples of excellence in customer support
 - IBM delivery a small part flying its engineer to customer site,
 - Buffer Inc. provides superior customer support which helps market itself
 - Do you have any examples of great customer service?

Measuring customer service at Buffer Inc.

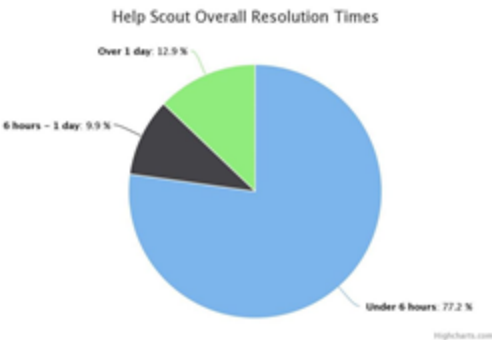
Email responses



Twitter responses



Resolution time



Support channels



- Several support channels can be used:
 - Email, Twitter, Facebook, Phone, Remote desktop, FAQ, Ticketing system, Bot
 - What channels of support exist in your organization?
- High touch vs low touch:
 - High touch service involves human interaction as against automated systems (IVR), FAQ, etc.
 - Mission critical products such as SAP, Navitaire, Shopify, etc. need high touch support
- Choose the right channel
 - Wistia: How did it optimize support?
 - StudioPress: How did it provide support?

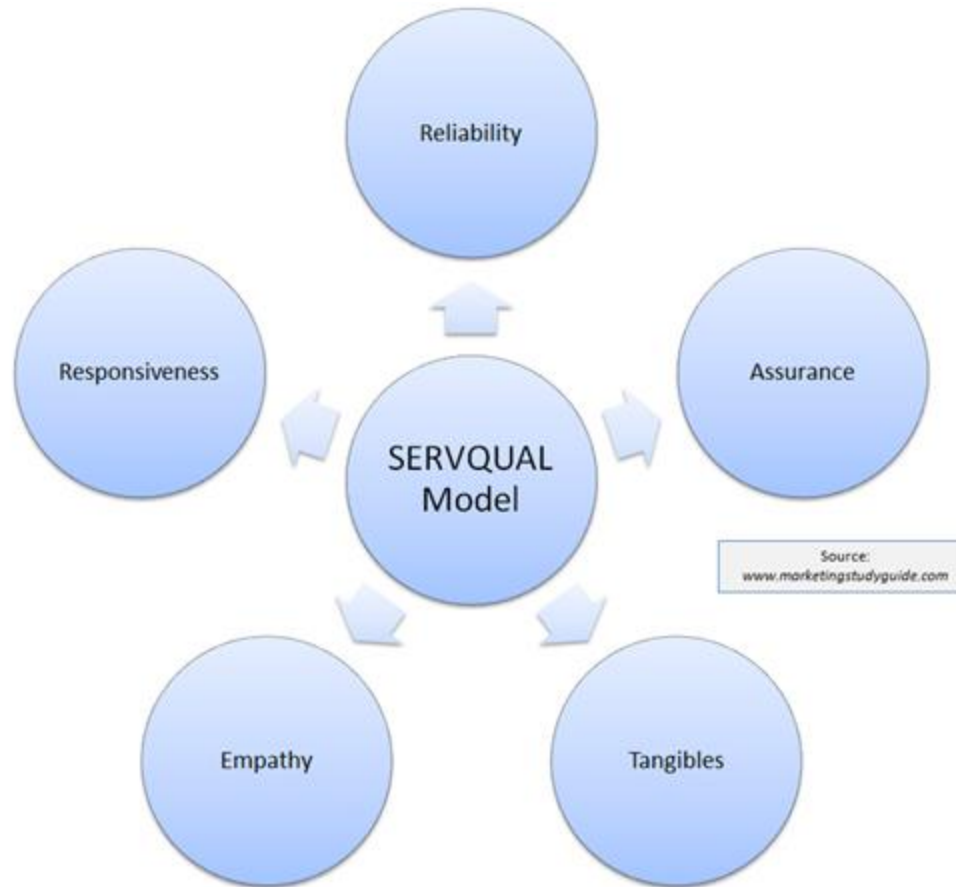


Service Quality



- Ensure quality of service using concepts of SERVQUAL

What are the characteristics of a service quality (SERVQUAL)?



Which service quality characteristic is most important in your project?

Service Quality



- **Reliability** is the firm's ability to perform the promised service accurately and dependably
 - **Responsiveness** is the firm's willingness to help customer and provide prompt service
 - **Assurance** is knowledge and courtesy of employees and their ability to inspire trust and confidence
 - **Empathy** is caring and individualized attention paid to customers
 - **Tangibles** refers to physical facilities, equipment and appearance of personnel
-

Exercise: SERVQUAL

Which service quality are we referring to in the scenario described below:

- The hotel room has pleasing colours
 - Tangibles
 - When a problem is fixed, another appears
 - Reliability
 - When the network fails, it is fixed in 1 hour
 - Responsiveness
 - The engineer is able to clear all doubts of customer satisfactorily
 - Assurance
 - The engineer understands the urgency and goes the extra mile to help
 - Empathy
-

Product improvements & enhancements



- Improve the product based on customer feedback
- Example
 - Slack: Integrations with email, channels / group chats
 - Postman: Documenting APIs, Mocking APIs for front end development)
 - Any other?
- Case study in product improvement: How to listen to customers and analyse them before implementing: Interview with Jim Lynch, Salesforce. What can we learn from this case study?



Jim Lynch
interview

Experience sharing...



How are customer suggestions analyzed and acted upon in your organization?

Release planning



- Minor releases to fix critical issues
 - Major releases containing new features & enhancements
 - Feature prioritization can be based on
 - Value to customers
 - Need to match competition
 - Cost of development and support
 - Technical complexity and dependencies
 - Urgency of refactoring
 - How does release planning happen in your company?
-

Case study of product improvement: Word 6.0



- Word 6.0 on Apple Mac OS

Questions:

- Why did Microsoft want to converge Word on Windows with that on Mac?
- Why did they drop this idea?



Word 6.0

Situations triggering Product change



- Changing user needs
 - Amazon Pay-on-delivery
 - Ola SOS button
- Changing regulations – SOX, GST
- Changing standards – Word introduced 'Save as PDF'
- Changing technology
 - Amazon moved from monolithic architecture to Micro-services
- Any other type of change?
- Case study: Adobe Creative Cloud - Desktop to Cloud
 - What were the challenges?
 - How were they overcome?



Adobe case

Experience sharing...



What challenges did you face in making major changes to your product?

Continuous product innovations



- We need to continuously add value to clients
- Examples:
 - Netflix: Online order for DVD rental, recommendations feature to make it easy to choose, video streaming, own productions
 - AirBnB Covid pivot: Virtual experiences – Jungle safari, magic shows, Rio street art
 - BigBasket: Vending machine in apartment complex, Booking delivery slot
 - Women safety in Ola
 - Amazon: eCom, Prime, AWS, Alexa, Amazon Go, ...
 - eBay: 'Buy now, Pay later', Buyer seller negotiations, Auto search every day for a product you are looking for
 - Paytm – Video KYC
 - Other examples of continuous innovation?

Software Product Lines



- Examples
 - Telelink inter-office email: supports UUCP, LAN, Netware, RABMN (1990s)
 - Rockwell Collins: Helicopter cockpit system caters to multiple types of helicopters
 - SAP: Caters to Manufacturing, Insurance, Telecom, Retail
 - Any other?
- Product lines share a common set of features
- Achieves order-of-magnitude improvements in time to market, cost, productivity & quality

Case study: Saturn Aviation

Diagnostics and Maintenance

<https://resources.sei.cmu.edu/library/asset-view.cfm?assetid=21312>



Product Line Features and Variations

Platforms supported	Bus	Message handling
Helo	Type	Message analysis
Apache A	1553 (1553A, 1553B)	From text
Apache D	Ethernet	From XML
UH-60	1773	Message DB
Aircraft	ARINC (commercial aircraft)	XML translator
F-18	CAN? (automotive)	Read
C-17 (under discussion)	Architecture	Write (for sim/stim tool)
Ground vehicles	Single bus	Test level
M1A1 Abrams	Multiple bus	Operational
Variations within each by tail # or other vehicle feature	Single type	Intermediate
	Mixed type	Depot
	Nested (i.e., bus within bus; e.g., JTRS)	Development



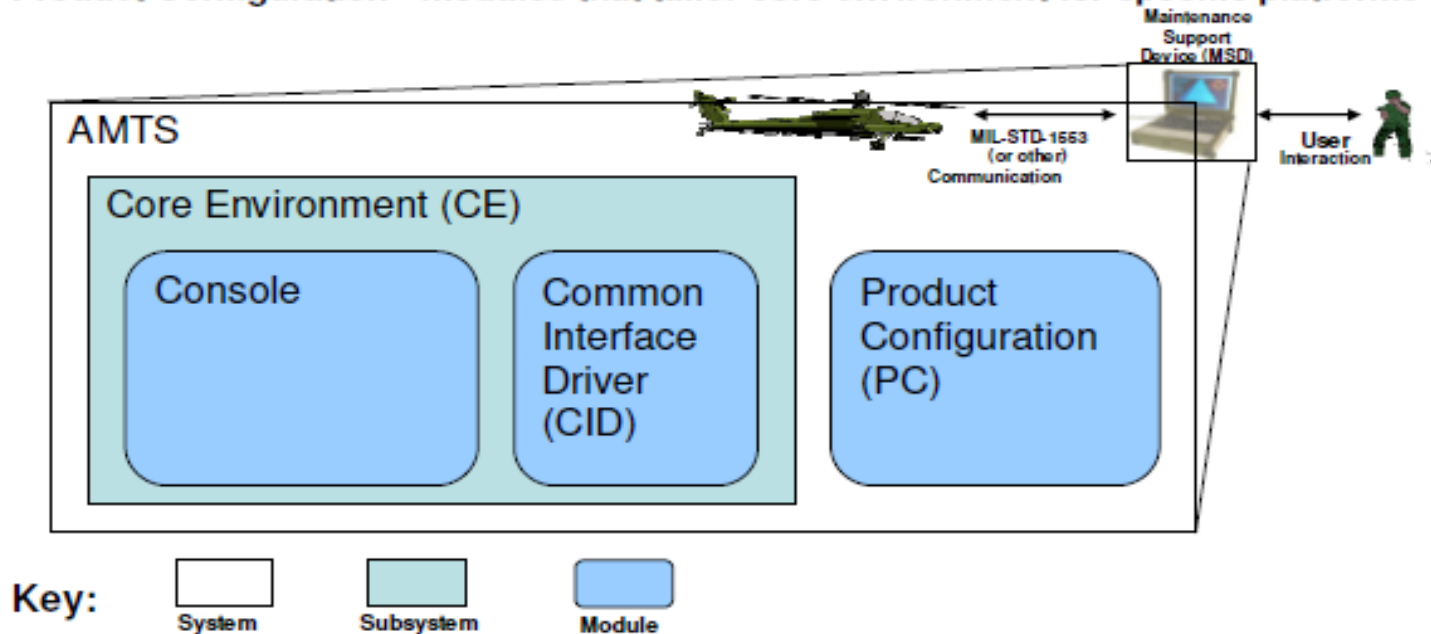
Case study: Saturn Aviation Diagnostics and Maintenance



AMTS Decomposition View

Core Environment - common modules across the product line

Product Configuration - modules that tailor core environment for specific platforms

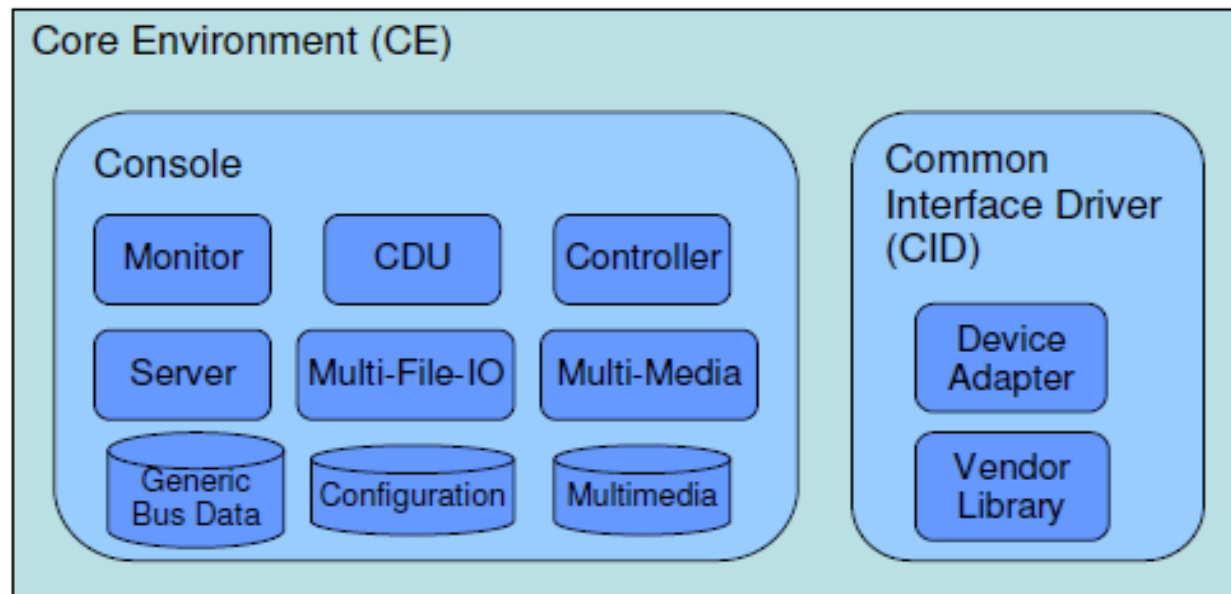


Case study: Saturn Aviation Diagnostics and Maintenance



Core Environment Decomposition View

Common assets for building testing systems for specific aviation platforms, systems, and subsystems



Key:



Subsystem



Module



Sub-Module



Repository



Software Engineering Institute

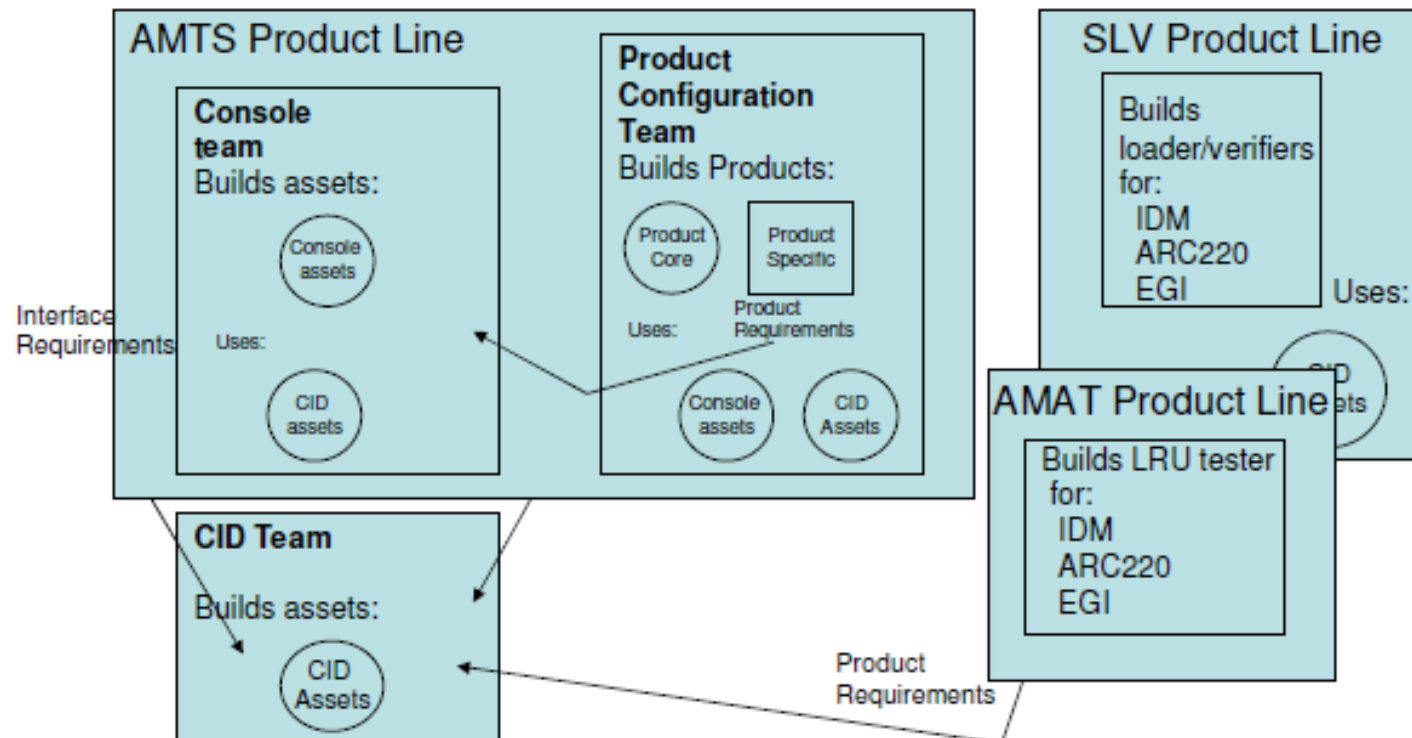
Carnegie Mellon

SEI Presentation (Basic)
Author, Date
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Case study: Saturn Aviation Diagnostics and Maintenance



Evolution – Product Line Growth



Lessons in Product lines



- Architecture is the foundation
 - Need to identify common elements
 - Need to have an organization structure to maintain common elements and build specific products
-

Experience sharing...



What challenges did you face in developing products using product line concept?



Appendix

