

Project Management
Project
On
AMAZON WEB SERVICES BY AMAZON.COM



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INTRODUCTION

Amazon Web Services (AWS) adds value in the various phases of the software development cycle, with specific focus on development and test. For the development phase, it shows how to use

AWS for managing version control; it describes project management tools, the build process, and environments hosted on AWS; and it illustrates best practices. For the test phase, it describes how to manage test environments and run various kinds of tests, including load testing, acceptance testing, fault tolerance testing, etc. AWS provides unique advantages in each of these scenarios and phases, allowing you to pick and choose the ones most appropriate for your software development project.

1. PROJECT OUTLINE

Making, Operation and maintenance of Amazon web services is an extremely complex and yet indispensable procedure **Amazon markets AWS as a service to provide large computing capacity quicker and cheaper than a client company building an actual physical server farm.** Amazon.com .is an esteemed organization in this field and takes up such project all over the world .However, some of these projects it outsources to private holdings too.

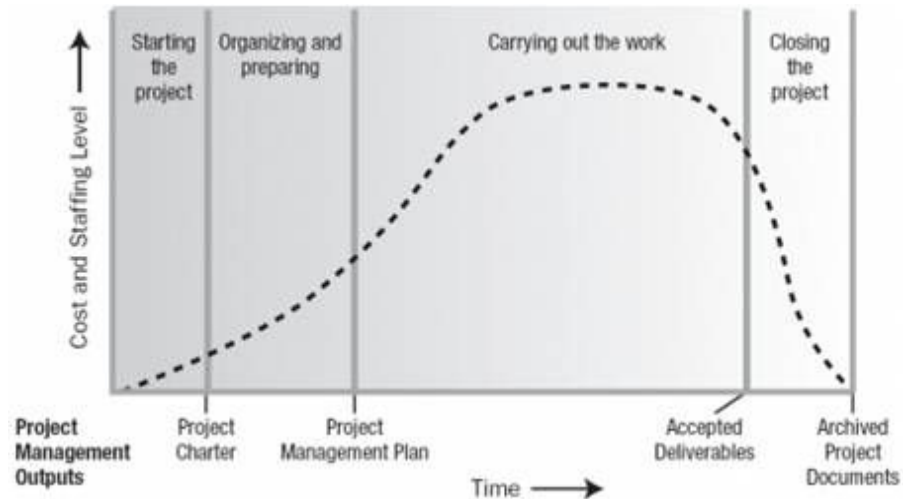
This particular project of amazon web services has been outsourced to a amazon.com. Project management techniques have been applied to the available project data and Project deliverable namely, project objective, planning, budgeting, scheduling and monitoring have been highlighted and calculated.

2. PROJECT OBJECTIVES

Amazon web services (AWS) is a set (more than 25) of proprietary web based services owned by Amazon.com. The Research and IT department of Amazon.com is accountable for all issues related to launching, maintenance and operation of Amazon web services,

The objective is to look at this project of Amazon.com. How Amazon created Amazon web services for providing services ranging from simple storage to sophisticated database services constitute the cloud platform and after its launching how it is maintained and how the new services has launched during its operation. Amazon shall provide and make available as necessary, all such management and staff as are required to make amazon web servers. Subject to the terms of the Contract, from and after Turnover Date, Amazon shall assume complete charge of and have care, custody, and control of the Facility.

2.1 PROJECT LIFECYCLE



Time

Implementing the new Amazon web servers company needed regions to setup their server for providing cloud computing services. so Amazon starts working on it in 2002 and announces to launch amazon web services S3 was developed first and foremost for Amazon's internal infrastructure. It started out as an idea in the head of Chris Pinkham, who worked as an engineer in charge of Amazon's global infrastructure in the early 2000s and in 2006 amazon launched its first service. In the form of storage services named amazon S3.

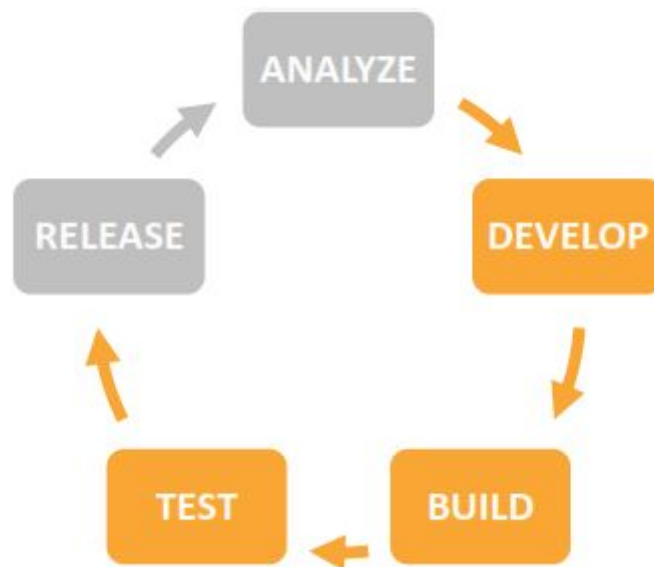
Cost

Amazon has to pay for and furnish all the resources mentioned by the development team and this team has the authority to order more equipment, tools and staff. This would generate cost overheads and therefore would be periodically audited to keep the cost in check. Besides, Amazon has to set up their servers for providing these services so the company selected 12 geographical regions for setting up their server which needs a high cost.

Performance

The development team of AWS first collaborates with the Owner to establish baselines and achievement targets for performance metrics such as Availability; Environmental, Health & Safety (EHS) Compliance, Budget Management; and other operator controlled metrics. Hence, Team and Amazon goals and priorities for a safe and efficient facility are effortlessly aligned. Over the course of the contract term, team performance is measured and compared to those mutually established achievement targets.

AWS Internal Life Cycle



3. PROJECT PLANNING

3.1 PROJECT TEAM

- **Head (Amazon web services)**

He is the Project Head and also a part of the senior management. He has overall control of entire development activities and would discharge his duties with the assistance of Head (Operations), Head (Technical).

- **Head (Operations)**

He has overall control of Operation and takes up responsibilities of the project.

- **Head (Operations and Efficiency)**

He has overall control of entire development related activities such as developing servers and creating services performance parameters monitoring, monitoring Collection of various performance parameters.

- **Developers**

He controls all the development related activities in creating these services these are executed as per approved standards, statutory norms and station set procedures.

- **Engineer (Infrastructure)**

He has overall control of designing and developing the services. How the infrastructure will be designed and applied in developing a reliable service.

- **Engineers (Web development)**

Controls all the development related to front end development or for Makes website for the Amazon web services.

- **Operations Manager**

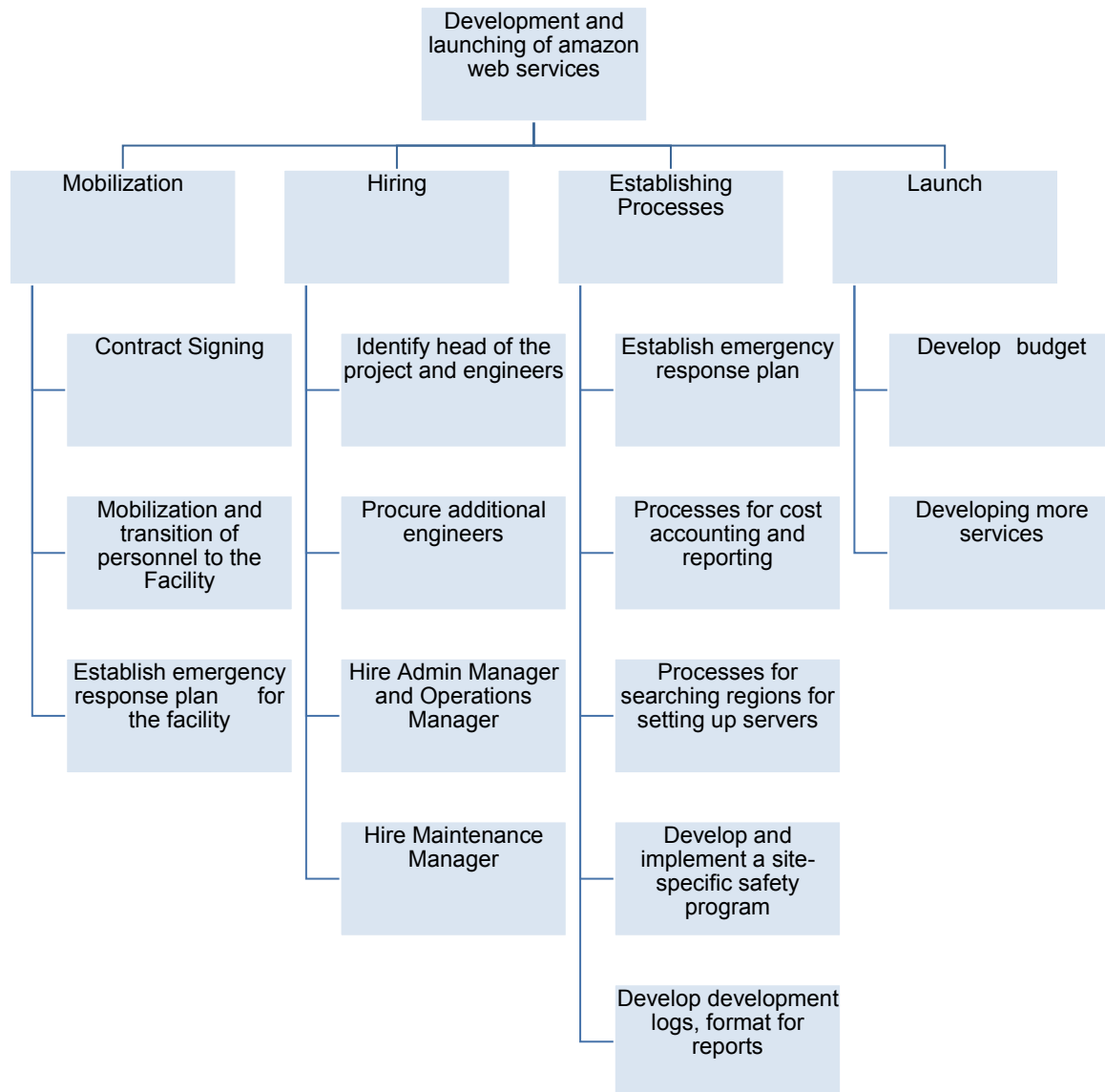
He handles Operation related issues.

Maintenance Manager

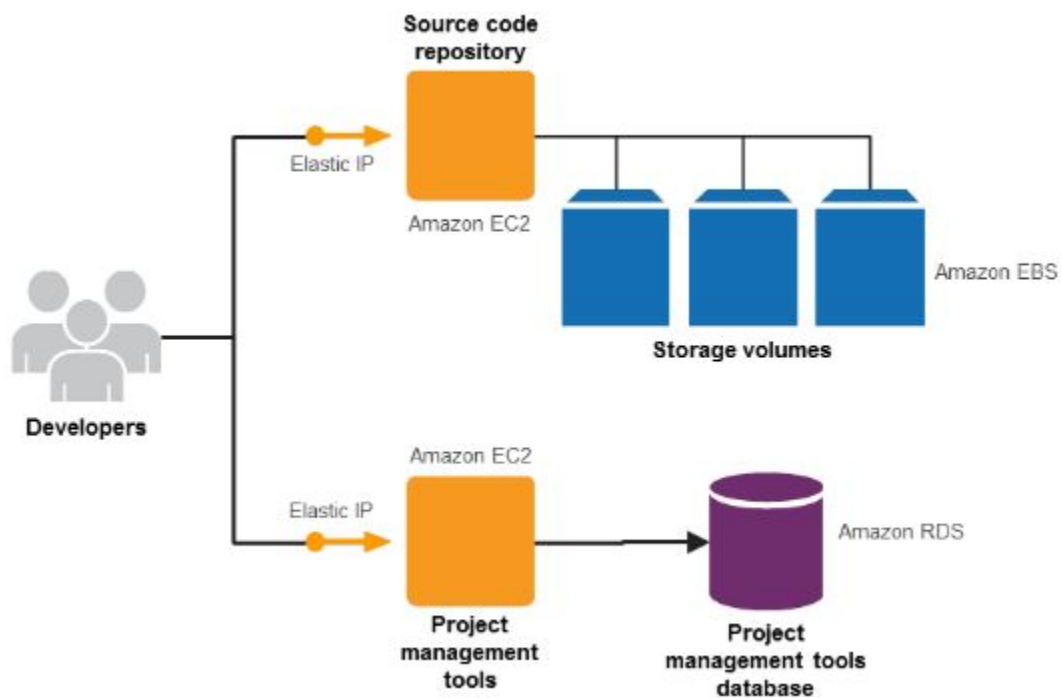
He is responsible for maintenance operations pertaining to the servers and its subsystems.

- **Administrative Manager**
He handles administrative issues.

3.2 WORK BREAKDOWN STRUCTURE



How AWS breaks down the work internally for software development and provides project management tools.



3.4 RESOURCE REQUIREMENTS

- Power supplies
- Land area for setting up servers
- Site Security
- engineers
- Cooling system for the servers
- Host server
- RAM and storage
- Electrical System
- Control and instrumentation
- developers
- Fire fighting system
- DG, UPS System
- Air Condition and Ventilation System
- staff

4. BUDGETING AND COST ESTIMATION

Here Bottom up Budgeting technique was used where the Operations Manager, and the Administrative Manager have the primary responsibility of creating the budget after proper inspection of the developers plan under their guidance. Subsequently they analyze the conditions and variables and create a budget. This is sent to the (Head of the development team) for assessment and ratification.

Sr No.	Event	Cost (crores)
A	Contract signing.	2
B	Identify developers.	1
C	Mobilize developers and additional corporate support personnel.	2
D	Arrange housing and local transport for developers and support personnel.	2
E	Finalize plans for staffing the amazon web services development team	1
F	Hire and mobilize Admin Manager and Operations Manager	2
G	Establish emergency response plan for the facility.	5
H	Establish processes for cost accounting and reporting	4
I	Set up location for setting up the servers	3
J	Establish processes for developing the servers	3
K	Start development of site-specific policies and procedures.	5
L	Begin recruiting and screening engineers.	5
M	Hire and mobilize Maintenance Manager.	2
N	Develop and implement a site-specific safety program.	7
O	Develop operating and testing department.	4
P	Develop structure and format of routine reports	5
Q	Review recommended parts of the project.	1
R	Hire engineers for the front end development of the website.	5
S	Structure a training program for these engineers	3
T	Hire and training staff for the locations where these servers are setup	7
U	technical documentation	6
V	Develop budget structure and format	8
W	Develop a PPM program for the facility.	8
X	Submit development team budget to management.	1
Y	Assign team with the proper material	2
	TOTAL BUDGET	94

5. PROJECT SCHEDULING

The major activities with the time duration have been listed as:

Sr No.	Event	Duration(in weeks)	Precedence
A	Contract signing.	2	-
B	Identify developers	2	A
C	Mobilize developers and additional corporate support personnel.	4	B
D	Arrange housing and local transport for developers and support personnel.	3	C
E	Finalize plans for staffing the amazon web services development team	3	A
F	Hire and mobilize Admin Manager and Operations Manager	3	E
G	Establish emergency response plan for the facility.	4	B,F
H	Establish processes for cost accounting and reporting	4	D,G
I	Set up location for setting up the servers	4	H
J	Establish processes for developing the servers	4	H
K	Start development of site-specific policies and procedures.	6	I,J
L	Begin recruiting and screening engineers	4	F
M	Hire and mobilize Maintenance Manager.	4	A
N	Develop and implement a site-specific safety program.	5	M
O	Develop operating and testing department.	5	N
P	Develop structure and format of routine reports	6	O
Q	Review recommended parts of the project	6	M
R	Hire engineers for the front end development of the website.	6	K,L
S	Structure a training program for these engineers	8	R
T	Hire and training staff for the locations where these servers are setup	8	S
U	technical documentation	8	B,H
V	Develop budget structure and format	8	T,U
W	Develop a PPM program for the facility.	8	P,Q
X	Submit development team budget to management.	8	V
Y	Assign team with the proper material	10	R,X

5.1 AON DIAGRAM

CRITICAL PATH: AEFGHIKRSTXY (66 WEEKS)

5.2 ACTIVITY DURATION AND COSTS

Sr No.	Event	Normal time (weeks)	Crash time (weeks)	Normal Cost (crores)	Crash Cost (crores)
A	Contract signing.	2	1	2	1
B	Identify developers	2	2	1	1
C	Mobilize developers and additional ENMAS corporate support personnel.	4	2	2	2
D	Arrange housing and local transport for developers and support personnel	3	2	2	2
E	Finalize plans for staffing the amazon web services development team	3	2	1	1
F	Hire and mobilize Admin Manager and Operations Manager	3	3	2	2
G	Establish emergency response plan for the facility.	4	3	5	4
H	Establish processes for cost accounting and reporting	4	3	4	3
I	Set up location for setting up the servers	4	4	3	2
J	Establish processes for developing the servers	4	4	3	3
K	Start development of site-specific policies and procedures.	6	5	5	4
L	Begin recruiting and screening engineers	4	3	5	5
M	Hire and mobilize Maintenance Manager.	4	3	2	2
N	Develop and implement a site-specific safety program.	5	3	7	6
O	Develop operating and testing department.	5	3	4	3
P	Develop structure and format of routine reports	6	4	5	4
Q	Review recommended parts of the projects	6	4	1	1
R	Hire engineers for the front end development of the website	6	5	5	5
S	Structure a training program for these engineers	8	5	3	2
T	Hire and training staff for the locations where these servers are setup	8	6	7	6
U	technical documentation	8	6	6	5
V	Develop budget structure and format	8	7	8	6
W	Develop a PPM program for the facility.	8	7	8	6
X	Submit development team budget to management	8	6	1	1
Y	Assign team with the proper material	10	8	2	1

5.3 PROJECT COST OPTIMIZATION

We can reduce the duration of project by crashing activity T by 2 weeks with cost of 1 Cr. Now we will crash activity Y by 2 weeks which incurs an additional cost of 1 Cr and reduces the project duration by 2 weeks. Crashing another activity S on the critical path reduces the project duration by 3 weeks and the cost for crashing is 2.01 cr. Crashing another activity A on the critical path reduces the project duration by 1 week and the cost for crashing is 1 Cr. Crashing activity G on the critical path reduces the project duration by 1 week and the cost for crashing is 1 cr. Crashing activity H on the critical path reduces the project duration by 1 week and the cost for crashing is 1 cr. The last activity that could be crashed on the critical path is activity K so we will crash it by 1 week at 1 Cr/week. The result is a reduction in the project duration by 11 weeks with additional cost of 8.01 cr.

No further reductions are possible in this time since each activity along a critical path (comprising of activities A, E, F, G, H, I, K, R, S, T, X and Y) are at minimum durations. At this point, the project duration is crashed by 11 weeks and the project cost is 102.01 Cr, representing a ~16 percent reduction in project duration and a ~8 percent increase in cost.

Hence, for Project-cost optimization, the activities of critical path i.e. AEFHGHIKRSTXY can be crashed by 11 weeks with a new cost of 102.01 crore.

Conclusion

Development and test practices require certain resources at certain times for the development cycle. In traditional environments, those resources might not be available at all, or not in the necessary time frame. When those resources are available, they provide a fixed amount of capacity that is either insufficient especially in variable activities like testing, or wasted (but paid for) when the resources are not used.

Amazon Web Services offers a cost-effective alternative to traditional development and test infrastructures. Instead of waiting weeks or even months for hardware, you can instantly provision resources needed, instantly scale up as the workload grows, and release resources when they are no longer needed. Whether development and test environments consist of a couple of instances or hundreds, whether they are needed for a few hours or 24/7, you still pay only for what you use. AWS is a programming-language and operating system-agnostic platform, and you can choose the development platform or programming model used in your business. This flexibility allows you to focus on your project, not on operating and maintaining your infrastructure.

AWS also enables possibilities that were difficult to realize with traditional hardware. You can fully automate resources on AWS so that environments can be provisioned and decommissioned without human intervention. You can start development environments on-demand; kick off builds when needed, unconstrained by the availability of resources; provision test resources; and automatically orchestrate entire test runs or campaigns.

AWS offers you the ability to experiment and iterate with a rapidly changeable infrastructure. Your project teams are free to use inexpensive capacity to perform any kind of tests or to experiment with new ideas, with no up-front expenses or long-term commitments, making AWS a platform of choice for development and test.

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