Xoom for Service Optimization

Business Case

Overview

- The comparison is made between a current Service Optimization setup (called C setup) and an equivalent setup with Xoom

- Assumptions and calculation steps for each comparison are given

    - assumptions are verified with the customer prior to calculation

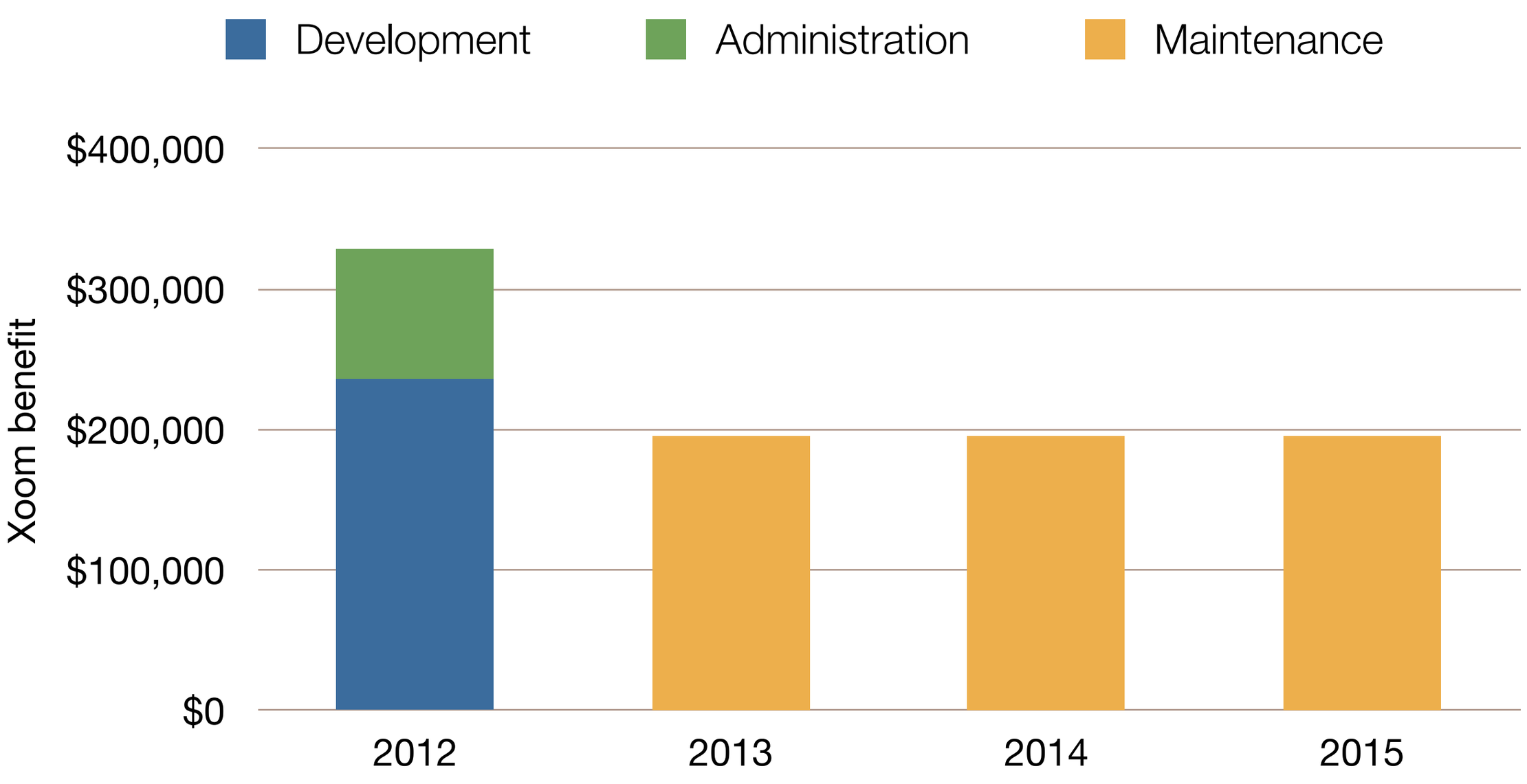
- Only the parts of the process where Xoom is relevant are included

    - for example, the preparation for the deployment and the deployment itself is included, whereas the development of customisations, which is unaffected by Xoom, is not included in the comparison

    - migration between Production and Production Support is included in the diagrams for completeness, but not in the actual comparison as this part is the same in all options

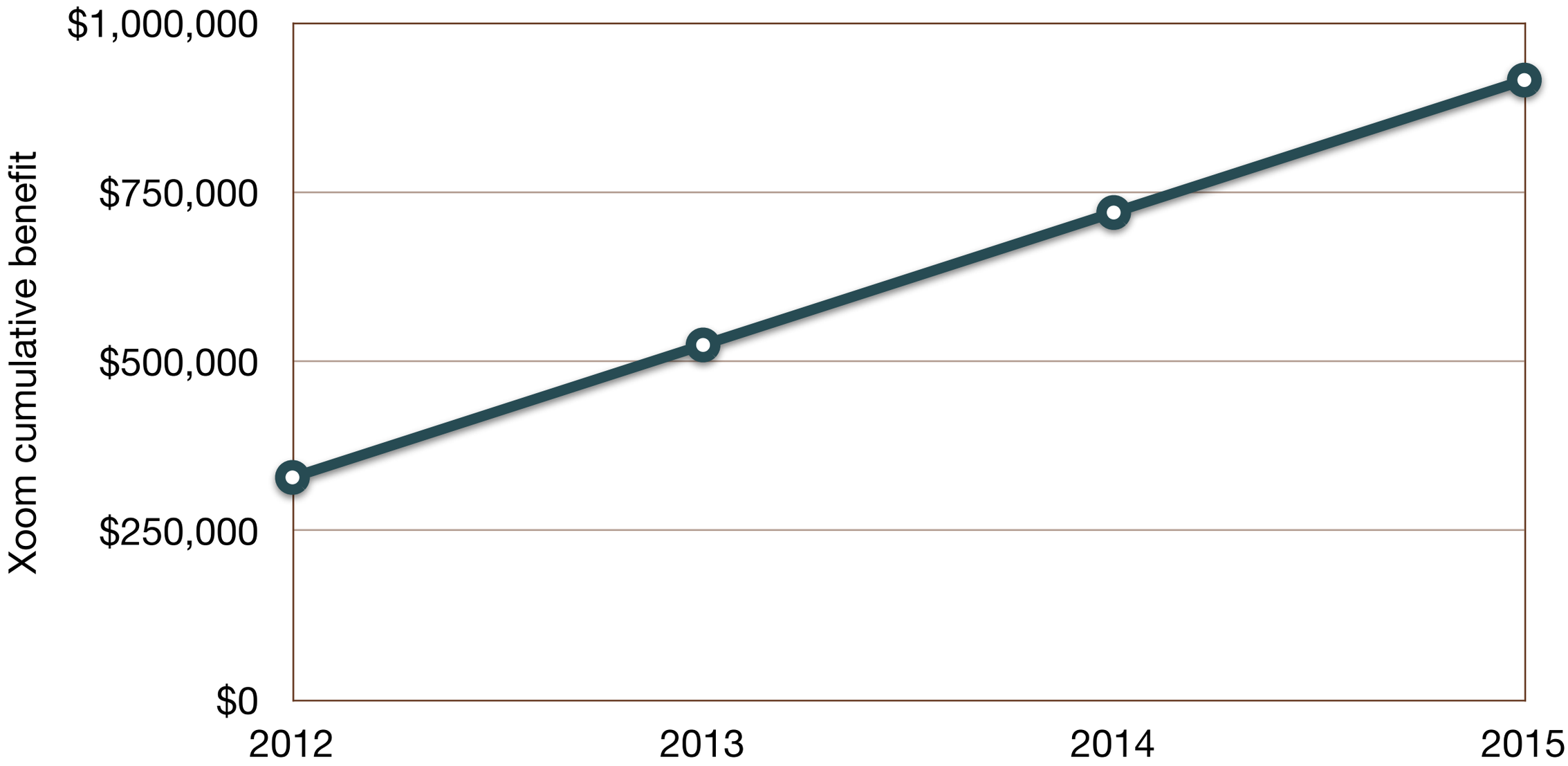
Summary

Benefits of Xoom per year (2012-2015)



Each column represents the net benefit of using Xoom instead of the C setup.

Cumulative benefits of Xoom (2012-2015)



Development before go-live

Overview

- Two development stages
    - Preparation: the developer prepares a feature for deployment
    - Deployment: the feature is actually deployed on a target environment
- Comparison of three configuration migration setups
    - C1: Current setup without Xoom
    - C2: Improved setup without Xoom
    - C: Setup suitable for after go-live without Xoom
    - X: Setup with Xoom

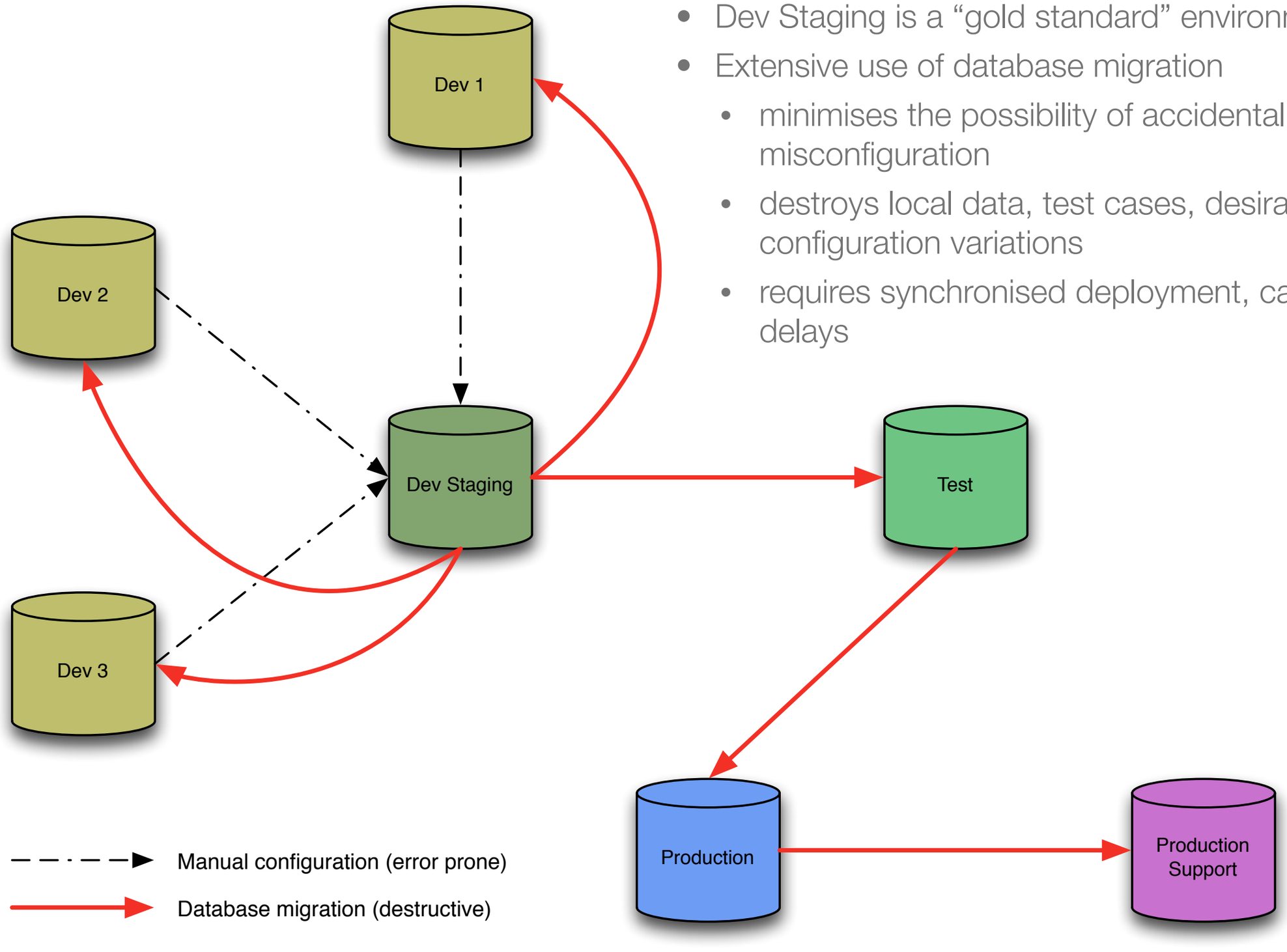
Preparation stage: Effort & risk estimates

Task	C1,C2, C	X
Verification of configuration changes (h)	4	0.5
Probability of functional misconfiguration (per release)	5%	2%
Remedial effort per misconfiguration (h)	40	40
Documentation of configuration changes (h)	6	0.25
Verification of configuration document (h)	2	0

Preparation stage: Calculation (Apr-Dec 2012)

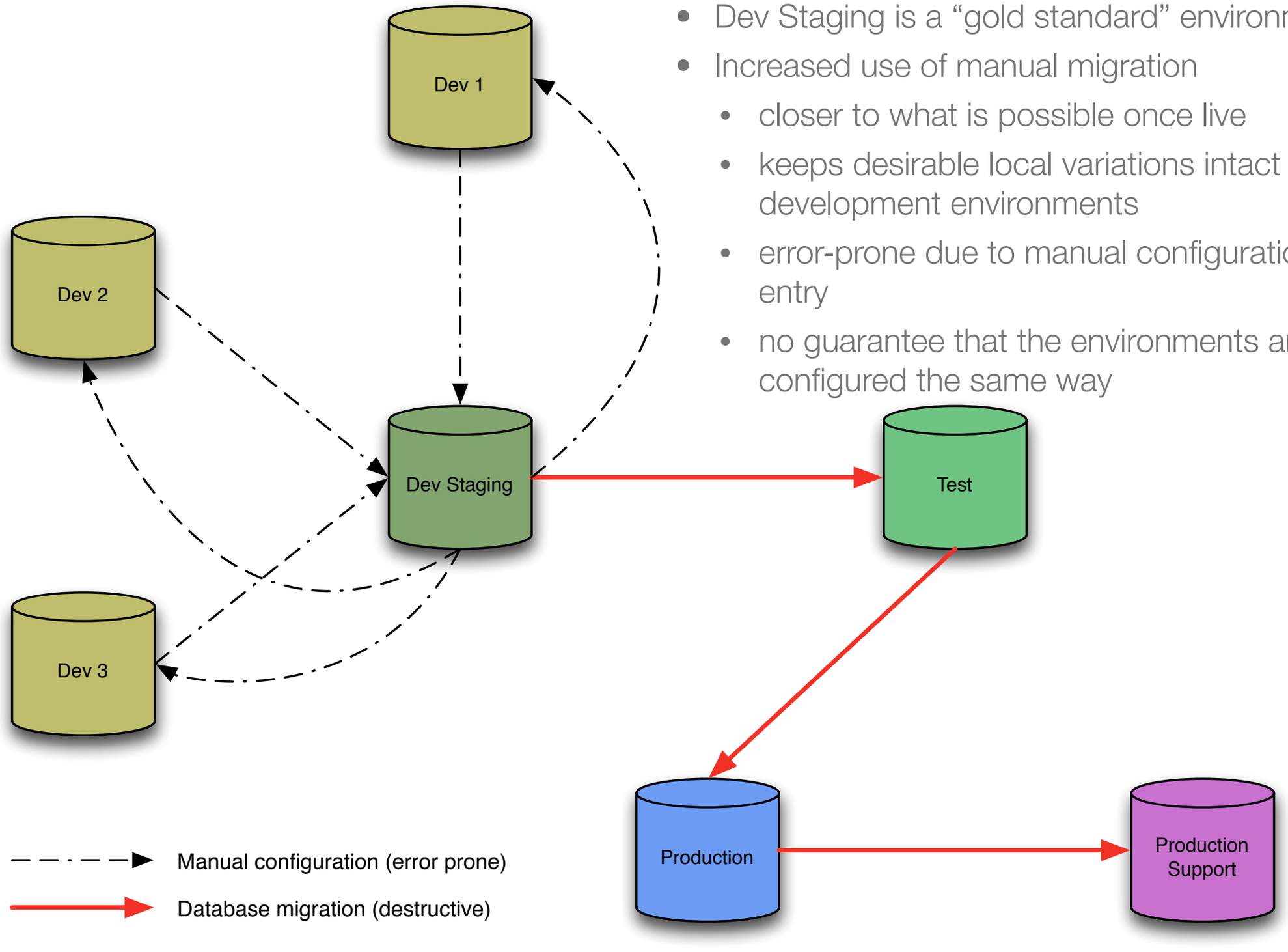
	C1,C2,C	X
Development cycle	1 week	
Number of weeks	38	
Number of development systems	3	
Preparation effort per week (h)	36	2.25
Misconfiguration remedial work per week (h)	6	2.4
Total preparation time Apr-Dec 2012 (h)	1596	176.7
Total preparation cost at $80/h	$127,680	$14,136

C1: Current setup without Xoom



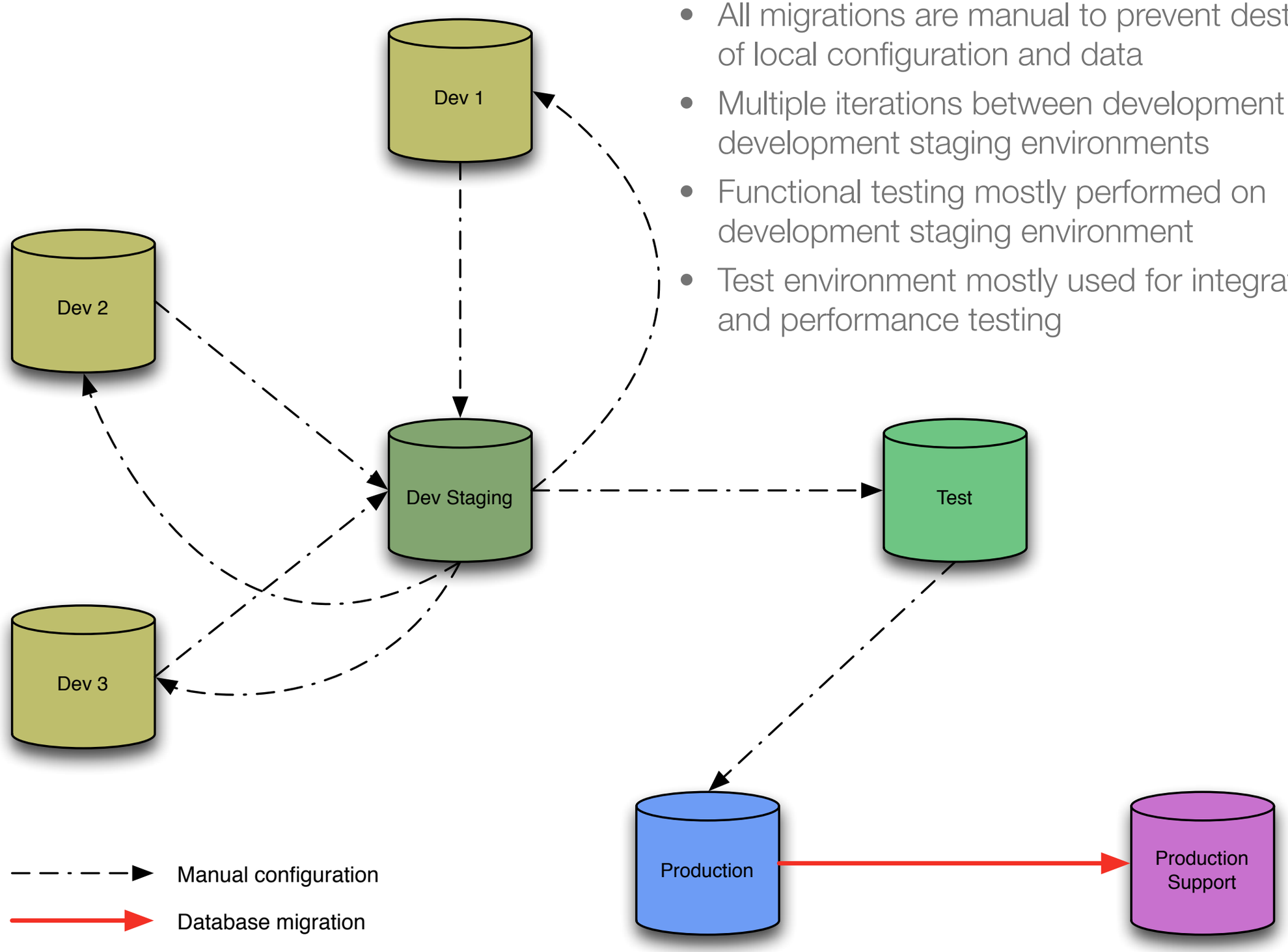
- Dev Staging is a “gold standard” environment
- Extensive use of database migration
  - minimises the possibility of accidental misconfiguration
  - destroys local data, test cases, desirable configuration variations
  - requires synchronised deployment, causing delays

C2: Improved setup without Xoom



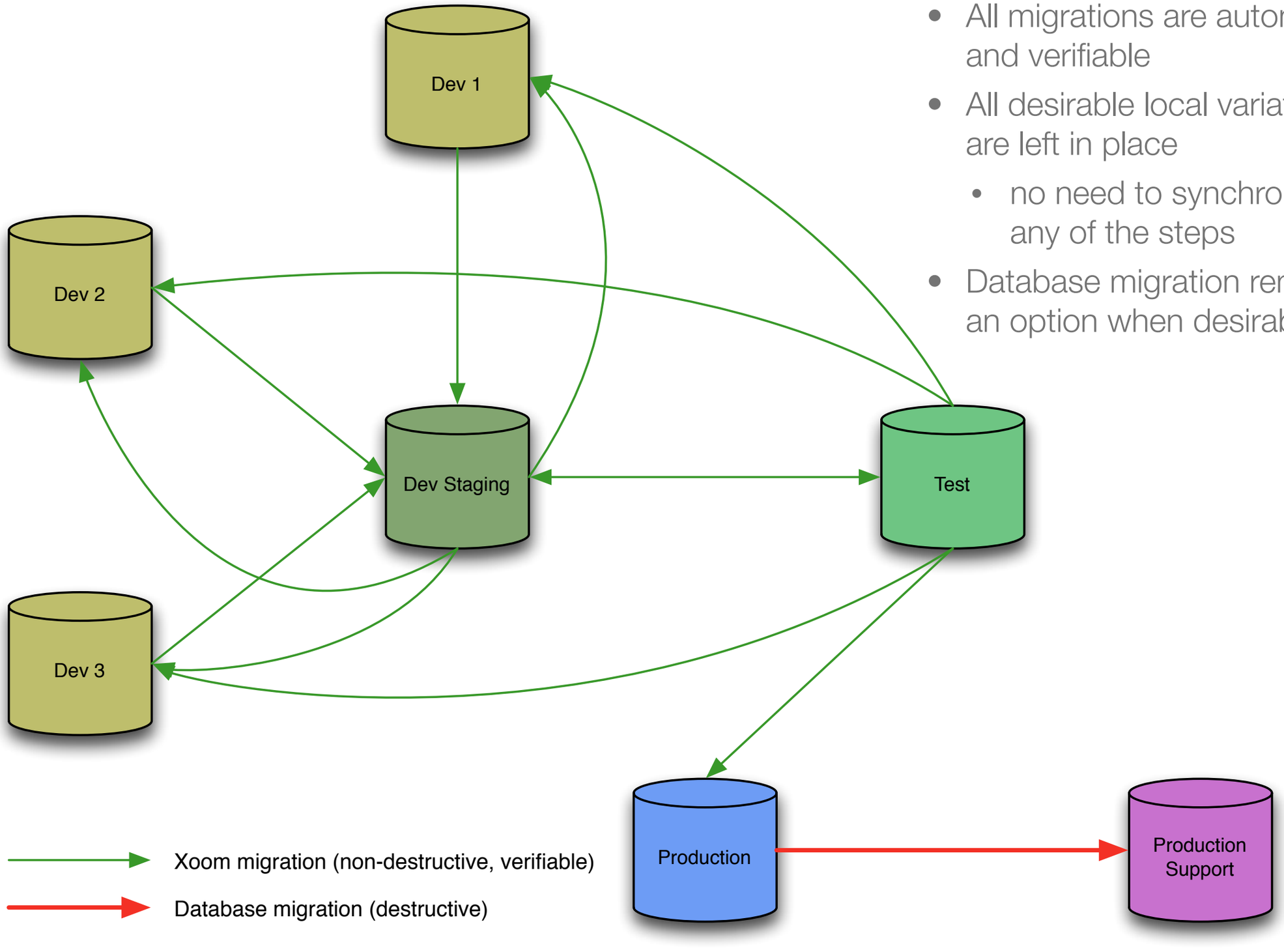
- Dev Staging is a “gold standard” environment
- Increased use of manual migration
  - closer to what is possible once live
  - keeps desirable local variations intact in development environments
  - error-prone due to manual configuration entry
  - no guarantee that the environments are configured the same way

C: Setup suitable for after go-live without Xoom



- All migrations are manual to prevent destruction of local configuration and data
- Multiple iterations between development and development staging environments
- Functional testing mostly performed on development staging environment
- Test environment mostly used for integration and performance testing

X: Setup with Xoom



- All migrations are automated and verifiable
- All desirable local variations are left in place
  - no need to synchronise any of the steps
- Database migration remains an option when desirable

Deployment stage: Functional comparison

Metric	C1	C2	C	X
Proportion of manual configurations	3/8	6/8	8/8	0/8
Automated verifiability of configuration	No	No	No	Yes
Preservation of configuration variations	No	Yes	Yes	Yes
Preservation of test cases and data	No	No	Yes	Yes
Requires synchronised deployment	5/5	2/5	0/5	0/5
Suitable for production use past go-live	No	No	Yes	Yes

Deployment stage: Effort & risk estimates

Task	C1,C2, C	X
Implementation of configuration changes (h)	2	0.25
Risk of accidental misconfiguration (per deployment)	10%	0%
Remedial effort per misconfiguration (h)	40	N/A
Time lost due to synchronisation (h)	8	0
Effort to re-establish local variations (h)	6	0

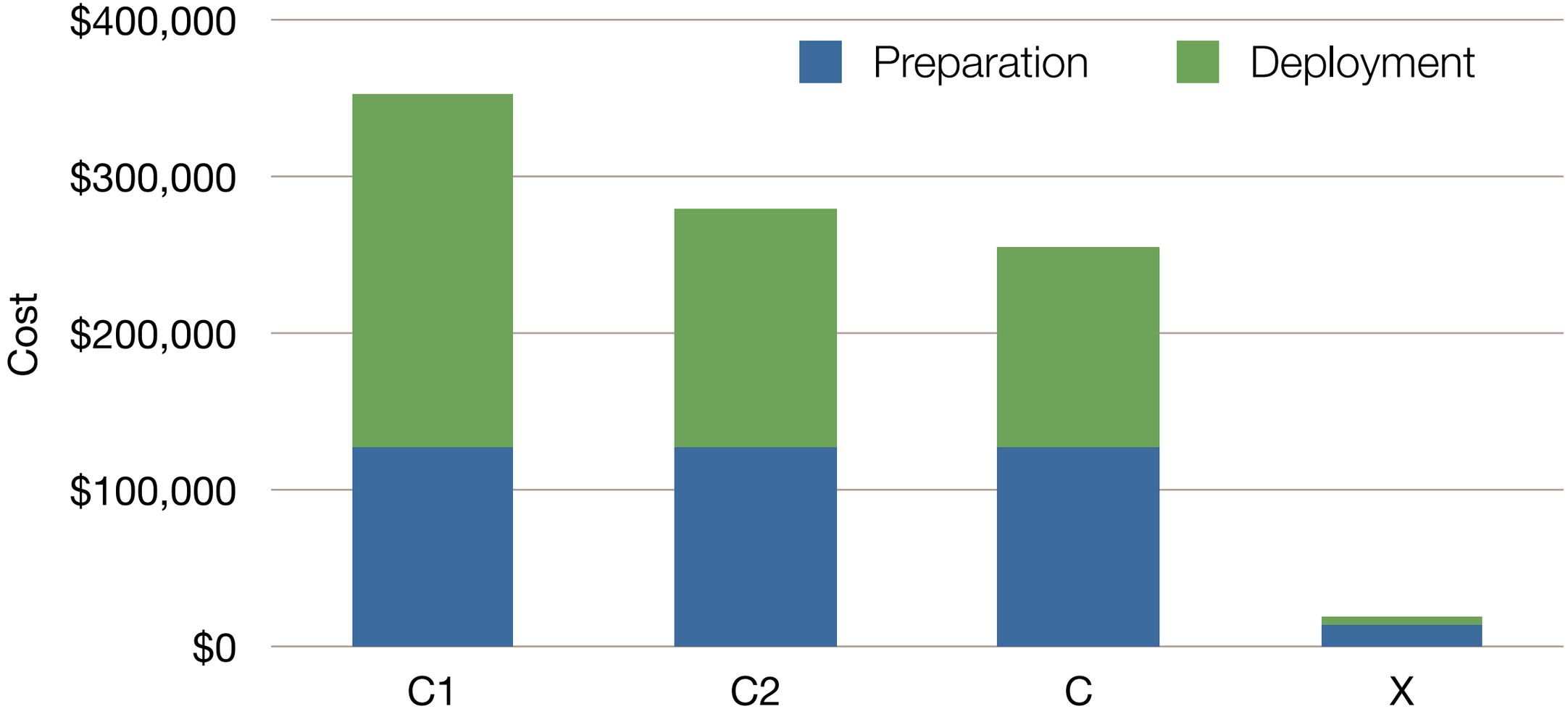
Deployment stage: Calculation (Apr-Dec 2012)

	C1	C2	C	X
Development cycle	1 week			
Test and production cycles	2 weeks			
Number of production cycles	19			
Configuration deployments per production cycle	6	12	14	14
Total configuration deployment effort (h)	228	456	532	66.5
Total misconfiguration remedial effort (h)	456	912	1,064	0
Database deployments per production cycle	8	2	0	0
Total database deployment effort (h)	2,128	532	0	0
Total preparation cost at $80/h	$224,960	$152,000	$127,680	$5,320

Cost comparison (Apr-Dec 2012)

Effort	C1	C2	C	X
Preparation	$127,680	$127,680	$127,680	$14,136
Deployment	$224,960	$152,000	$127,680	$5,320
Total	$352,640	$279,680	$255,360	$19,456

Assumptions	
Development cycle	1 week
Test & production cycle	2 weeks
Hourly employee cost	$80



Benefits of Xoom not taken into account

- Decreased time to go live, leading to operational benefits and dramatic decrease in opportunity cost

- Improved quality of deployment, with more capabilities available sooner

- Access to configuration history with ability to roll-back the changes that weren’t successful

    - with “gold standard” approach, this is only possible on an all-or-nothing basis, with a loss of operational data

Administration before go-live

Overview

- This section includes administrative tasks that are not necessarily related to the development and configuration of new features
    - administrative user templates
    - web client user templates
- Comparison of two setups
    - C: current setup without Xoom
    - X: setup with Xoom

Admin user templates: Effort & risk estimates

Task	C	X
Documentation (h)	0.5	0.05
Time per template deployment (h)	0.2	0.05
Risk of accidental misconfiguration (per template)	5%	0%
Remedial time per misconfiguration (h)	4	N/A

Admin user templates: Calculation (Apr-Dec 2012)

	C	X
Number of environments	6	
Number of templates per environment	5	
Number of deployment cycles	5	
Total documentation effort (h)	12.5	1.25
Total deployment effort (h)	30	7.5
Total misconfiguration remedial effort (h)	30	0
Total cost at $80/h	$5,800	$700

Web user templates: Effort & risk estimates

Task	C	X
Documentation (h)	4	0.05
Time per template deployment (h)	2	0.05
Risk of accidental misconfiguration (per template)	8%	0%
Remedial time per misconfiguration (h)	4	N/A
Number of templates	30	30
Number of deployment cycles	5	5
Proportion of effort for modifications of existing templates	20%	100%

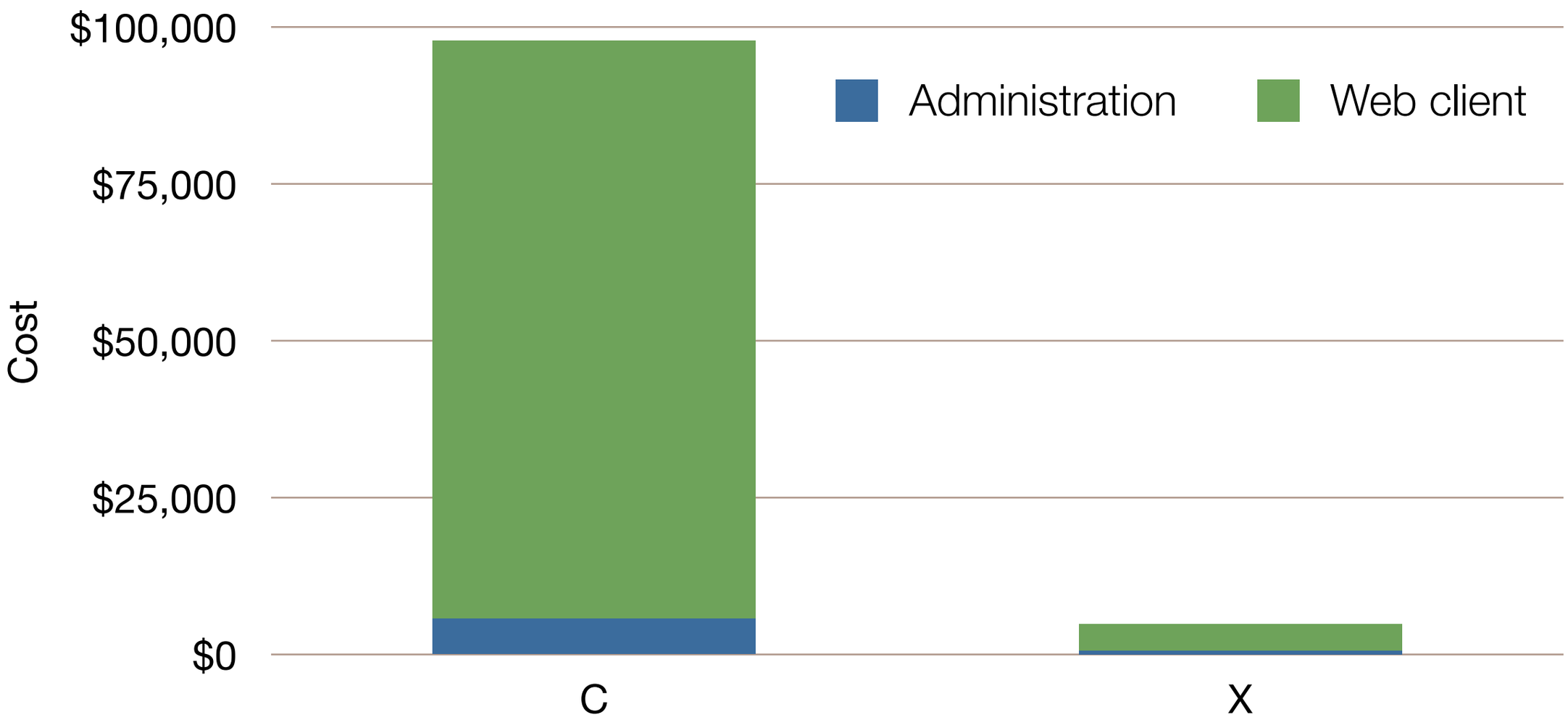
Web user templates: Calculation (Apr-Dec 2012)

	C	X
Number of templates	30	
Number of deployment cycles	5	
Number of environments	6	
Number of deployments per cycle	180	180
Effective number of cycles	1.8	5
Documentation effort (h)	216	7.5
Implementation effort (h)	648	45
Misconfiguration remedial effort (h)	288	0
Total cost at $80/h	$92,160	$4,200

Cost comparison (Apr-Dec 2012)

Effort	C	X
Administrative templates	$5,800	$700
Web client templates	$92,160	$4,200
Total	$97,960	$4,900

Assumptions	
Number of environments	6
Hourly employee cost	$80



Benefits of Xoom not taken into account

- No reliable underlying assumptions are currently available to estimate the benefits with respect to ClickMobile templates

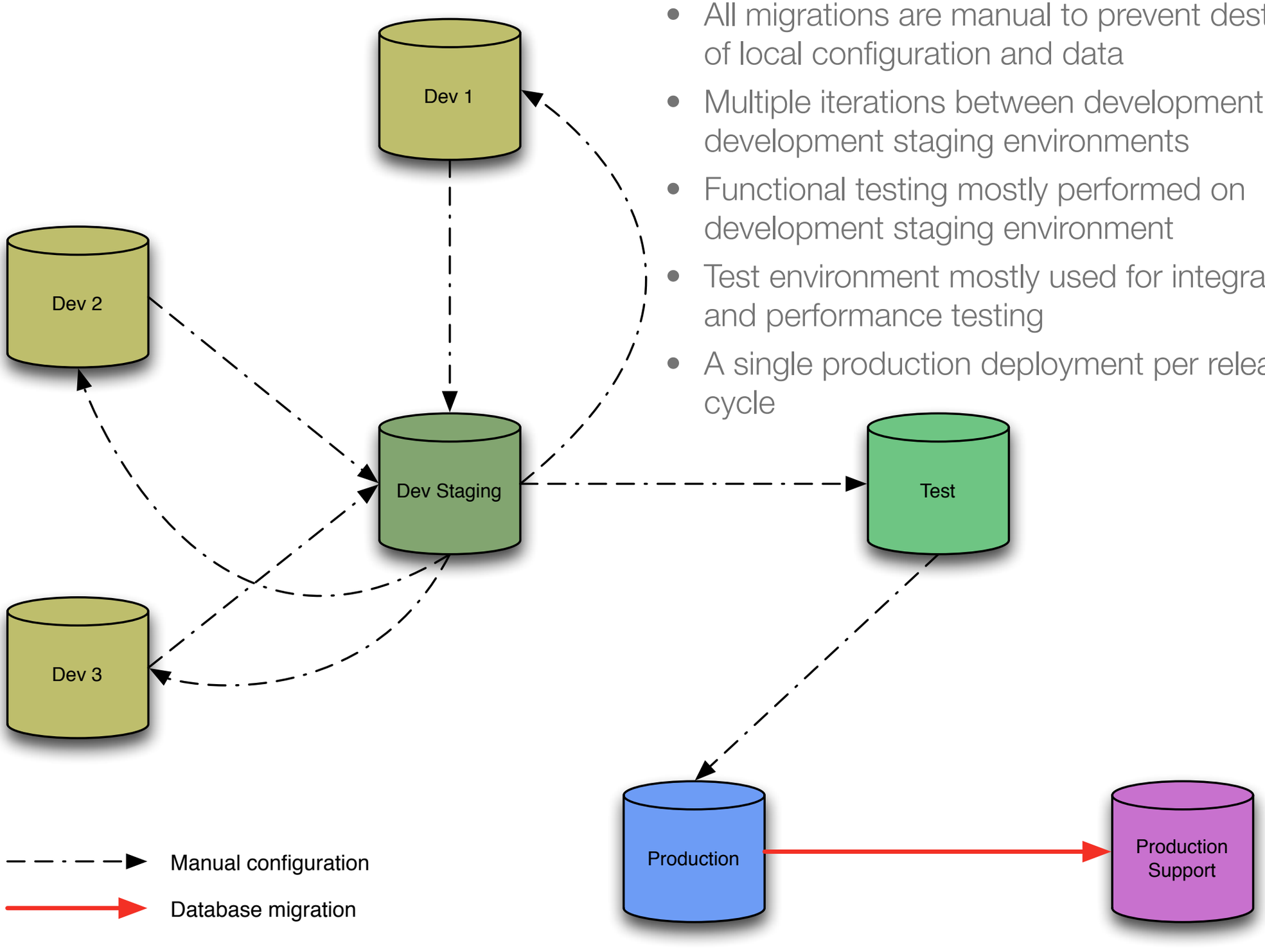
- Other, non-structured administrative efforts are not included, for example:
    - baselining - bringing an environment to a common configuration baseline
    - creation of user settings based on these user templates, as required
- Cost of complexity arising from proliferation of templates and other settings for backup purposes
    - unnecessary with Xoom because of support for proper versioning

Release cycle after go-live

Overview

- This section includes regular release cycles after go-live
    - development and testing of new features
    - integration testing and production deployment once the release is ready
- Comparison of two setups:
    - C: feasible setup without Xoom
    - X: setup with Xoom

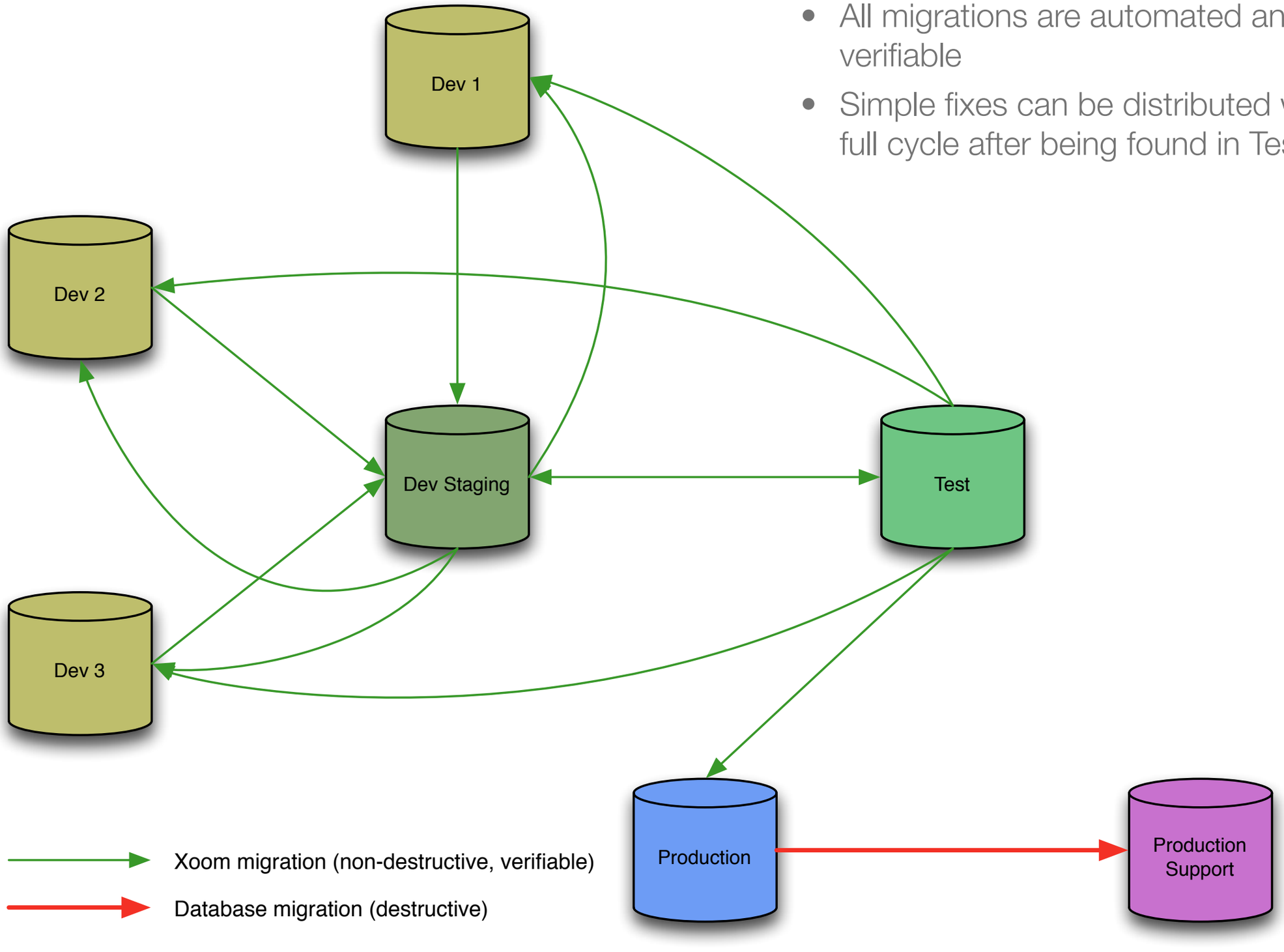
C: Configuration migrations without Xoom



- All migrations are manual to prevent destruction of local configuration and data
- Multiple iterations between development and development staging environments
- Functional testing mostly performed on development staging environment
- Test environment mostly used for integration and performance testing
- A single production deployment per release cycle

X: Configuration migrations with Xoom

- All migrations are automated and verifiable
- Simple fixes can be distributed without full cycle after being found in Test



Preparation stage: Effort & risk estimates

Task	C	X
Verification of configuration changes (h)	4	0.5
Probability of functional misconfiguration (per release)	5%	2%
Remedial effort per misconfiguration (h)	40	40
Documentation of configuration changes (h)	6	0.25
Verification of configuration document (h)	2	0

Functional preparation stage: Calculation (per year)

	C	X
Number of release cycles per year	4	
Functional releases per cycle	6	
Individual development environments	3	
Number of functional preparations per year	72	
Functional preparation effort (h)	864	54
Functional misconfiguration remedial effort (h)	144	57.6
Functional preparation cost at $80/h	$80,640	$8,928

Integration preparation stage: Calculation (per year)

	C	X
Number of release cycles per year	4	
Integration releases per cycle	3	
Number of integration preparations per year	12	
Functional preparation effort (h)	144	9
Functional misconfiguration remedial effort (h)	24	9.6
Functional preparation cost at $80/h	$13,440	$1,488

Production preparation stage: Calculation (per year)

	C	X
Number of release cycles per year	4	
Production releases per cycle	1	
Number of production preparations per year	4	
Production preparation effort (h)	48	3
Production misconfiguration remedial effort (h)	8	3.2
Production preparation cost at $80/h	$4,480	$496

Preparation stage: Calculation (per year)

	C	X
Functional preparation cost at $80/h	$80,640	$8,928
Integration preparation cost at $80/h	$13,440	$1,488
Production preparation cost at $80/h	$4,480	$496
Total preparation cost at $80/h	$98,560	$10,912

Test deployment: Effort & risk estimates

Task	C	X
Implementation of configuration changes (h)	4	0.25
Risk of accidental misconfiguration (per deployment)	10%	0%
Remedial effort per misconfiguration (h)	40	N/A

Functional test deployment: Calculation (per year)

	C	X
Number of release cycles per year	4	
Functional test releases per cycle	6	
Individual development environments	3	
Number of functional deployments per year	144	
Functional deployment effort (h)	576	36
Misconfiguration remedial effort (h)	576	0
Functional deployment cost at $80/h	$92,160	$2,880

Integration test deployment: Calculation (per year)

	C	X
Number of release cycles per year	4	
Integration test releases per cycle	3	
Number of integration deployments per year	24	
Integration deployment effort (h)	48	3
Misconfiguration remedial effort (h)	48	0
Integration deployment cost at $80/h	$7,680	$240

Test deployment: Calculation (per year)

	C	X
Functional test deployment cost at $80/h	$92,160	$2,880
Integration test deployment cost at $80/h	$7,680	$240
Total preparation cost at $80/h	$99,840	$3,120

Production deployment: Effort & risk estimates

Task	C	X
Implementation of configuration changes (h)	6	0.25
Risk of accidental misconfiguration (per deployment)	6%	0%
Remedial effort per misconfiguration (h)	40	N/A
Risk of downtime (per misconfiguration)	30%	0%
Average production downtime (h)	4	N/A

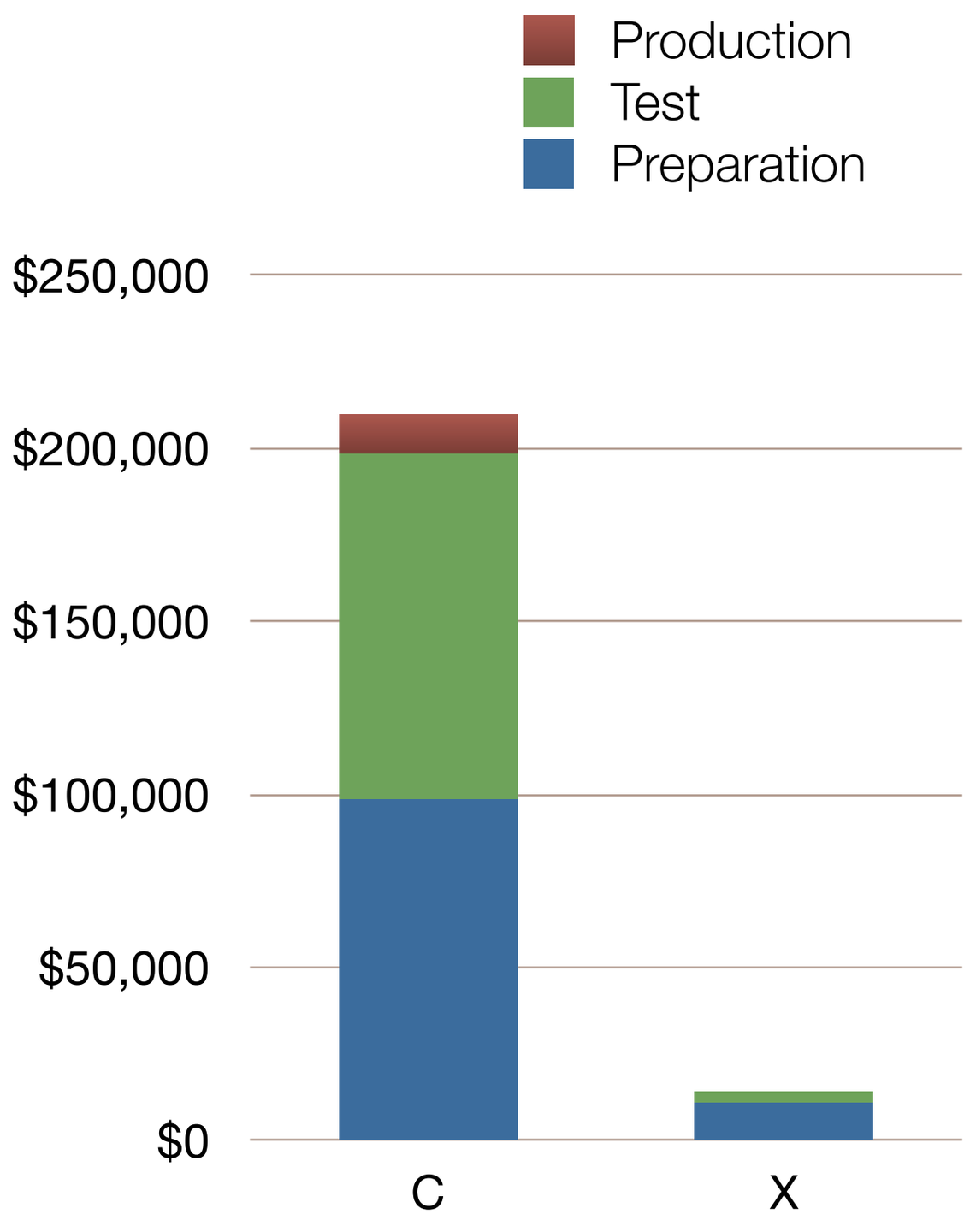
Production deployment: Calculation (per year)

	C	X
Number of release cycles per year	4	
Deployment effort (h)	24	1
Misconfiguration remedial effort (h)	9.6	0
Deployment cost at $80/h	$2,688	$80
Production downtime cost	$8,640	$0
Total production deployment cost	$11,328	$80

Cost comparison (per year)

Effort	C	X
Preparation	$98,560	$10,912
Test	$99,840	$3,120
Production	$11,328	$80
Total	$209,728	$14,112

Assumptions	
Number of release cycles per year	4
Functional releases per cycle	6
Integration releases per cycle	3
Hourly employee cost	$80
Cost per hour of production downtime	$30,000

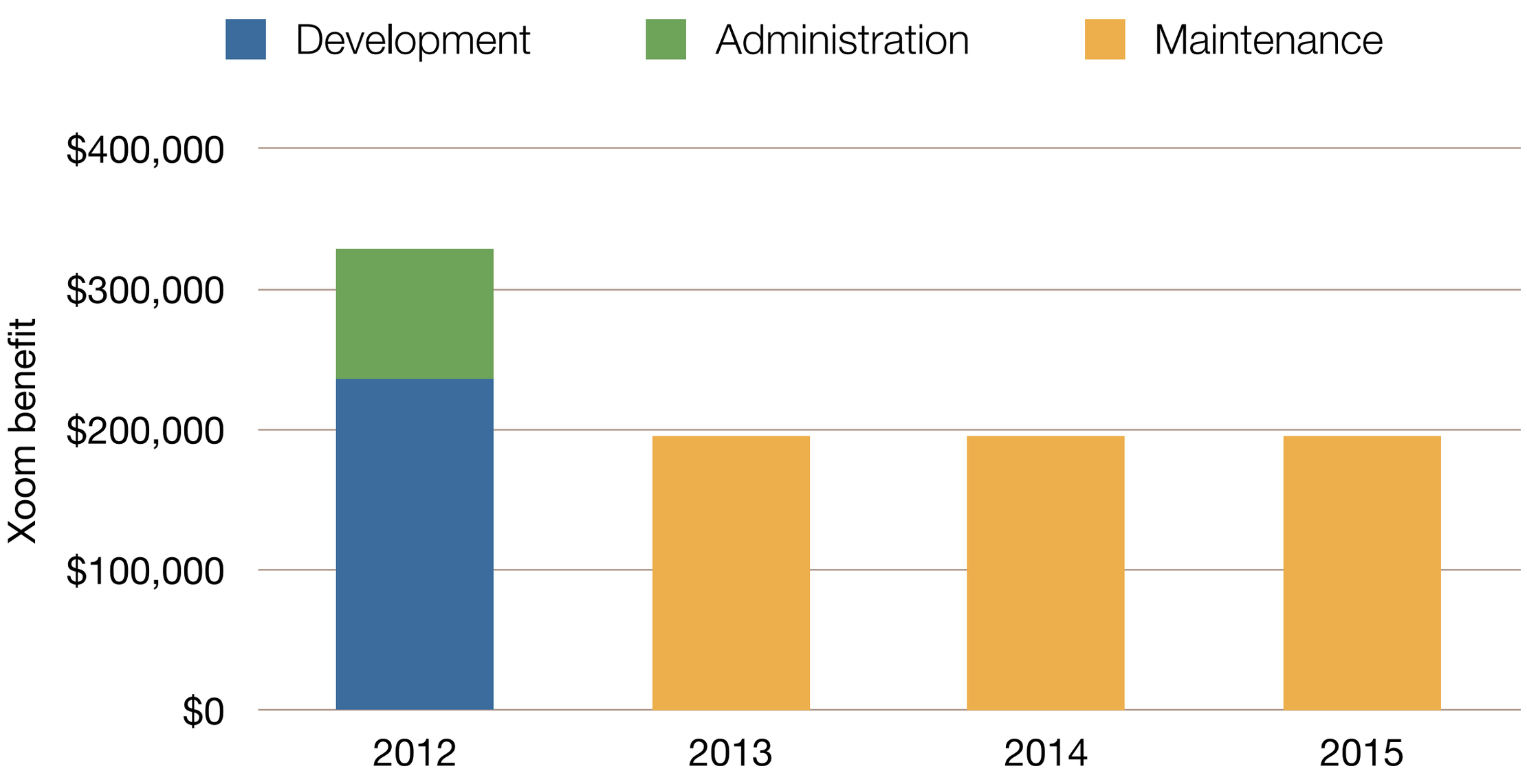


Benefits of Xoom not taken into account

- The reduction of production downtime needed for deployment itself
- The ability of Xoom to revert to previous good configuration if production problems happen
- support for partial revert when the problematic part of the configuration can be identified
- decreased need for server downtime, no loss of operational data
- fully automated and verifiable process

Summary

Benefits of Xoom per year (2012-2015)



Each column represents the net benefit of using Xoom instead of the C setup.

Cumulative benefits of Xoom (2012-2015)