

Continuous Delivery @ Wix

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A story on Wix time machine



Wix in numbers

- 22,000,000 registered users from 233 countries
- ~1,000,000 new users every month
- ~ 25,000 new websites every day
- 16,000,000 web sites
- 650,000 mobile sites
- Over 120Tbyte of users media files
- More than 1 Billion users media files
- 230+ servers in 3 data centers
- 270 employees
- 80 R&D people



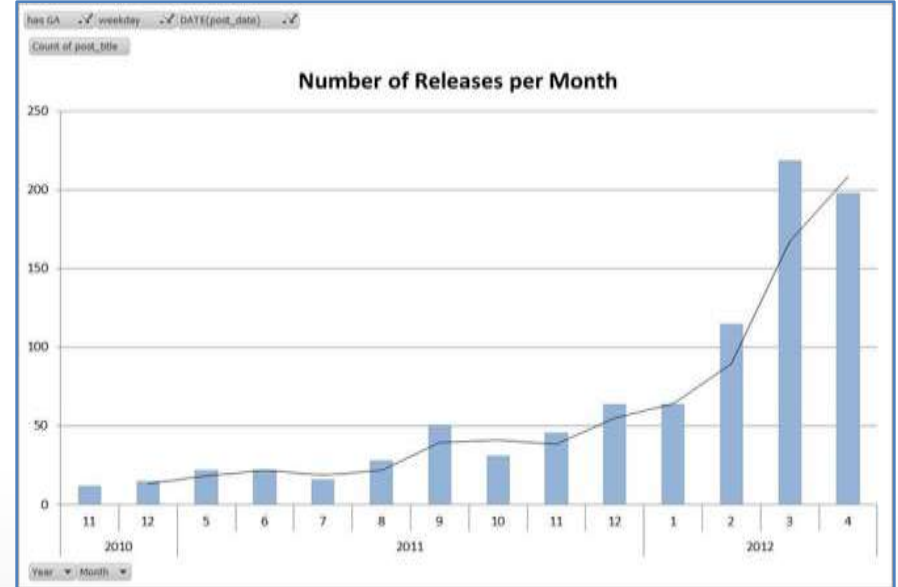
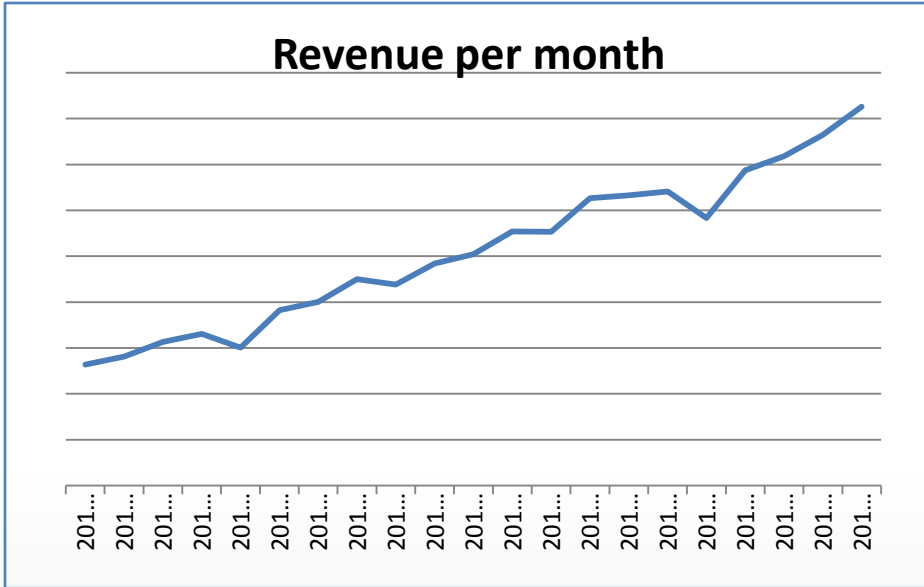


Time machine event =

- **Deployment capabilities** : “no click” deployment
 - Dozens of services , 230+ servers over 3 Data Centers
- **Backward and forward compatibility at the extreme field test case**
 - Mixed versions of services / DB with no service downtime
- **Empowerment**
 - The power we give to individual
- **Risk taken and failure embracement**



CD is business concern



Traditional “Economies of scale” threaten by cloud technology

Be faster than small startups

CD → “Economies of Agility “ = Velocity X Size

CD is culture & mindset

- Trust the developers
 - Empower developers to change production
 - Developer knows his system best
- Automation as a default choice
 - no more “is it worth to automate ? ”
 - Everything should be automated
- Welcome to the twilight zone
 - Product/Dev/QA boundaries are going down
 - Everyone need to care about everything
 - Less formality : Corridor - IN , Meeting Room - Out



Here is what they always forget to tell new testers in the job interview

Get out of thought land

make sure you building the right it
before build it right

- The Law of Failure
 - Most new “its” will fail even if they are flawlessly executed
- Invest less, in touch less , better ability to admit it fail
 - Data beats opinions - Let the market decide

Some Best Practices

- Everyone develops on the Trunk/Master
 - Release frequent – small pieces of functionality
 - It's the developer responsibility not to break anything
- Code can get to production at anytime
 - TDD & integration test
- Use Feature Toggle
 - Unbaked new code can go to production – no harm done
 - New code goes with a guard – use new or old code



Some Best Practices

- **Backwards and Forwards compatible**
 - Each component has to function with latest, next or prior version of other components (including DBs)
- **Gradual Deployment & Self Test**
 - Deploy new version to one server and perform self test. If it passes, continue deployment to other servers
- **A/B Testing**
 - Open a new feature to a percent of your users. Is it better?
 - Deployment is an engineering decision



CD – prepare to invest.....

- Dev infrastructure - Refactor , Refactor, Refactor
- Testing infrastructure & know how
- Deployment infrastructure & tools
- Automation , Automation , Automation
- Monitoring (business and technical)
 - hundreds of aspects
 - thresholds use is a Must
 - Monitor business KPIs
 - Internal & external
 - Endless Tuning & learning



Wix Developer Lifecycle

Wix LifeCycle

[View](#)
[Logout](#)

Build Name	SNAPSHOT	RC	GA	Production
Wix Lists	1.2.0	1.1.0	1.1.0	1.1.0
Lighttpd	1.37.0	1.36.0	1.36.0	1.36.0
Supervisor	1.19.0	1.18.0	1.18.0	1.18.0
Html Wysiwyg	1.9.0	1.8.0	1.0.0	1.0.0
ExpressMobile	1.50.0	1.49.0	1.42.14	1.42.14
▼ Wix Media Private	1.17.0	1.15.0	1.15.0	1.16.0

Open build in TeamCity
Open Artifactory
Release To GA

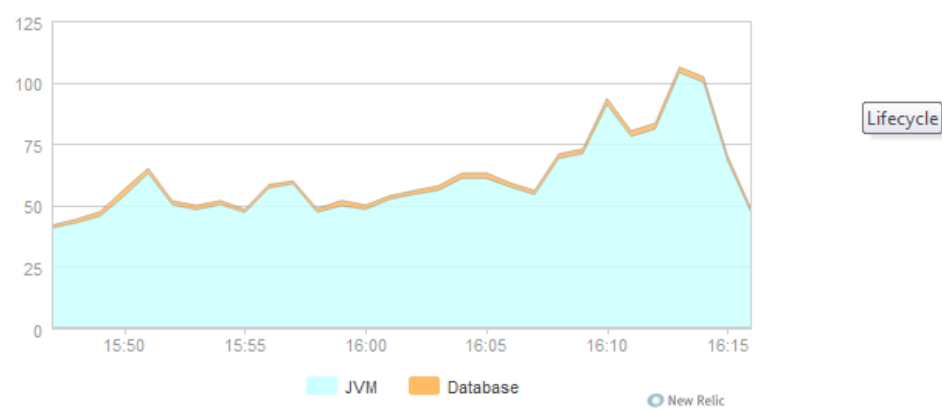
Recent events

- 01-26 15:44 - Wix User2 static 2.110.0 -> GA
kfirb: Move to old mechanism of login view
- 01-26 14:56 - Release to RC
lior: Project Wix Users Wix User2 static Released
- 01-26 14:28 - 3. Wix Public Html API 2.1.0 -> GA
dalias: promoting
- 01-26 14:27 - 2. Wix Public Html Renderer 2.4.0 -> GA
dalias: promoting
- 01-26 14:27 - 3. Wix Public Html API 2.1.0 -> GA
dalias: promoting
- 01-26 14:06 - Release to RC
releaseuser: Project Wix Html Server 2. Wix Html Editor Released
- 01-26 13:16 - Wix Editor 3 (GIT) 1.95.0 -> GA
daniels: connection timeout fix for users segment rpc
- 01-26 13:10 - Release to RC
Daniel Shmuglin: Project Wix Editor 3 Wix Editor 3 (GIT) Released

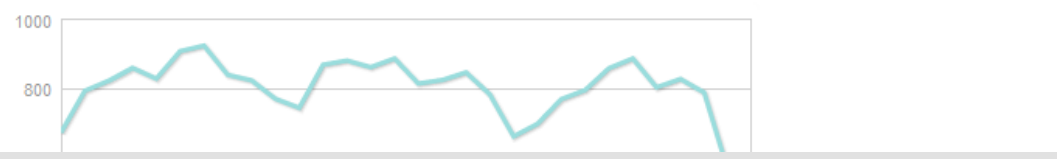
Recent events

- 01-24 19:14 - Release to RC
labria: Project Wix Media Wix Media Private Released
- 01-18 11:31 - Wix Media Private 1.15.0 -> GA
labria: New version to prod
- 12-26 15:04 - Release to RC
Kfir Bloch: Project Wix Media Wix Media Private Released
- 12-05 16:22 - Wix Media Private 1.12.0 -> GA
golamp: tornado2 + send_file from link

PrivateMedia: Average response time (ms)



PrivateMedia: Throughput (last 30 minutes)



New Relic - Monitoring

New Relic dashboard for application `wix-public-html-renderer`. The interface shows various monitoring metrics and logs.

Average response time, broken down by tier (ms) (Average: 35 ms)

Apdex score (0.99 [0.1])

Throughput (rpm) (Average: 603)

Slow transactions

Request ID	Resp. Time
04/10 16:35	1,198 ms
04/10 16:48	1,438 ms
04/10 18:21	1,223 ms
04/10 18:33	834 ms
04/10 18:22	1,242 ms

Errors

Error Message	Count
org.springframework.web.util.NestedServletException: InvocationTargetException render	178
org.springframework.web.util.NestedServletException: javax.faces.el.ValueExpression_500	112
java.lang.IllegalArgumentException: item_430	18
java.lang.IllegalArgumentException: @Inject@Rendered render	7
org.springframework.web.util.NestedServletException: @Inject@Rendered render	3

5 servers

Server	Apdex score	Resp. time	Throughput	CPU usage	Memory
api1.atyexpress.com	0.97	33.5 ms	35 rpm	8%	1.07 GB
api2.atyexpress.com	0.98	28.9 ms	182 rpm	4%	1.11 GB
api3.atyexpress.com	0.97	33.2 ms	182 rpm	10%	1.04 GB
api7.atyexpress.com	0.98	19.8 ms	181 rpm	5%	1.06 GB
api8.atyexpress.com	0.98	19.9 ms	182 rpm	6%	1.05 GB

Recent events

- End user Apdex score < 0.85
- api7 deployed revision 2.82.0
- api1.ams deployed revision 2.82.0
- api2.ams deployed revision 2.82.0
- api2.chi deployed revision 2.82.0
- api1.chi deployed revision 2.82.0
- api3 deployed revision 2.82.0
- api2 deployed revision 2.82.0
- api1 deployed revision 2.82.0
- api8 deployed revision 2.82.0
- api3.chi deployed revision 2.82.0

Application dashboard

Wix Framework App-Info Dashboard - Wix Editor Server

Dashboard ChangeLog Managed Services Included Artifacts Full Stack Trace Snapshot Recent Log Configuration Values Feature Toggles Throttlers

Application Information

Title	Wix Editor Server
Artifact	wix-editor-war
Version	1.142.0
Build	928d94070a7ca1635522a8e00c4f45c3c0a2ce24
Build Timestamp	20120606-1355
Server Name	app21.wixpress.com
Uptime	3 21:47:13
Server Time Zone	America/Chicago
Server Startup	13/06/2012 15:45:59.495
Server Current Time	17/06/2012 13:33:12.495

Usage Summary

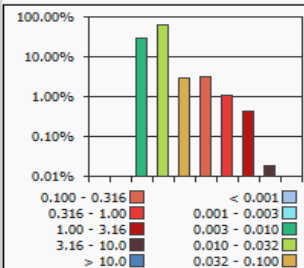
Total Calls	8709942
Total Successful calls	8700536
Throughput	1,547.8 rpm
Average Response Time	56.0 mSec
Error Rate	0.00 %
System Errors	5993/25/1220/119
Business Errors	1135/300/614/0

Prev. Startup Information

Version 1.142.0	13/06/2012 10:24:04.823
Version 1.142.0	13/06/2012 07:02:01.562
Version 1.142.0	13/06/2012 05:29:06.757

Usage Statistics

Method		Calls	Average	Max	System Errors	Business Errors
f.p.c.c.w.m.s.ReadOnlyMetaSiteManager.getMetaSite	Rolling Last	936,586 219	0.0 mSec 0.0 mSec	6.9 mSec 0.2 mSec	19/0/0/0 0/0/0/0	0/0/0/0 0/0/0/0
c.w.e.m.MetaSiteFacade.getPrimaryDomain	Rolling Last	752,874 176	0.0 mSec 0.0 mSec	6.3 mSec 0.0 mSec	0/0/0/0 0/0/0/0	0/0/0/0 0/0/0/0
c.w.e.m.MetaSiteFacade.getMetaSite	Rolling Last	745,596 175	8.6 mSec 6.9 mSec	6,882.6 mSec 73.8 mSec	0/0/0/0 0/0/0/0	4/0/0/0 0/0/0/0
c.w.e.c.PremiumController2.getPremiumFeatures	Rolling Last	391,925 98	14.5 mSec 14.0 mSec	6,885.5 mSec 221.0 mSec	0/0/96/0 0/0/0/0	379/55/0/0 0/0/0/0
c.w.e.s.PremiumService.getPremiumFromMetaSitePrivileged	Rolling Last	391,546 98	14.3 mSec 13.8 mSec	6,885.3 mSec 220.7 mSec	0/0/96/0 0/0/0/0	0/55/0/0 0/0/0/0
c.w.e.m.MetaSiteFacade.getSeoDataFromAppOrDefault	Rolling Last	361,370 76	0.0 mSec 0.0 mSec	8.0 mSec 0.0 mSec	0/0/0/0 0/0/0/0	0/0/0/0 0/0/0/0
c.w.e.c.PublicRestClient.callHttpApi	Rolling Last	312,932 49	113.4 mSec 595.1 mSec	10,932.0 mSec 1,830.2 mSec	0/0/0/0 0/0/0/0	0/0/4/0 0/0/0/0
c.w.e.s.StaticGridService.createPage	Rolling Last	271,419 82	33.9 mSec 118.8 mSec	16,577.6 mSec 2,336.3 mSec	0/0/0/0 0/0/0/0	0/0/83/0 0/0/0/0



Total Calls	
Max Time	
Avg Time	
System Fatal	
System Error	
System Warning	
System Recover	
Business Fatal	
Business Error	
Business Warning	
Business Recover	

Rolling Usage Statistics Last 48 Hours

Exception	Distribution
c.w.f.d.WixDataIntegrityViolationException	(98.7012987012987%) 76
c.w.e.e.PageSaveFailedException	(1.2987012987012987%) 1



Application dashboard

- Self-Test – Can my application function?

Wix Framework App-Info Dashboard - Public Html Renderer WAR

Dashboard Managed Services Included Artifacts Full Stack Trace Snapshot

Application Information		Usage Summary	
Title	Public Html Renderer WAR	Total Calls	0
Artifact	wix-public-html-renderer-webapp	Total Successful calls	0
Version	2.5.0-SNAPSHOT	Throughput	0.0 rpm
Build	f4b29e25654767cf24175e56e010f152a24cea1a	Average Response Time	-
Build Timestamp	20120125-1057	Error Rate	0.00 %
Uptime	32:3	System Errors	-
Server Startup	25/01/2012 10:31:20.739	Business Errors	-
Server Current Time	25/01/2012 13:03:24.616		
Server Time Zone	Europe/Amsterdam		

Managed Services			
Service Name	Enabled	Alive	Message
c.w.h.r.s.MobileHtmlRendererBeansConfig\$MobileHtmlRenderer - mobileHtmlRenderer	true	false	c.w.h.r.s.MobileHtmlRendererBeansConfig\$MobileHtmlRenderer Caused by: ModelProcessorChain - dependencies Caused by: ScriptsHtmlModelProcessor Caused by: failed loading scripts from source [http://static.crispy.wixpress.com/services/wix-express-mobile/1.42.14/index.json] caused by c.w.h.r.s.ScriptSourceFailedLoadingScriptsException - failed loading scripts from [http://static.crispy.wixpress.com/services/wix-express-mobile/1.42.14] caused by c.w.h.r.s.ScriptSourceFailedLoadingScriptsException - failed loading scripts from [http://static.crispy.wixpress.com/services/wix-express-mobile/1.42.14]
c.w.h.r.s.FacebookHtmlRendererBeansConfig\$FacebookHtmlRenderer - facebookHtmlRenderer	true	false	c.w.h.r.s.FacebookHtmlRendererBeansConfig\$FacebookHtmlRenderer Caused by: ModelProcessorChain - dependencies Caused by: ScriptsHtmlModelProcessor Caused by: failed loading scripts from source [http://static.crispy.wixpress.com/services/html-wysiwyg/1.0.0/index.json] caused by c.w.h.r.s.ScriptSourceFailedLoadingScriptsException - failed loading scripts from [http://static.crispy.wixpress.com/services/html-wysiwyg/1.0.0] caused by c.w.h.r.s.ScriptSourceFailedLoadingScriptsException - failed loading scripts from [http://static.crispy.wixpress.com/services/html-wysiwyg/1.0.0]
			c.w.h.r.s.WebSeoRendererBeansConfig\$WebSeoRenderer Caused by: ModelProcessorChain - dependencies



Chix – Staging Deployment

Answers (1.71.0)	Production 1.71.0
Appstore (1.0.0)	Production 1.4.0
Backoffice (2.105.0)	Production 2.105.0
Billing (2.140.0)	Production 2.140.0
Blog (1.103.0)	Production 1.103.0
Common Services (1.17.0)	Production 1.17.0
Connect Services (1.79.0)	Production 1.79.0
Connect Static Files (1.59.0)	Production 1.59.0
Dashboard (2.17.0)	Production 2.17.0
Dashboard Static Files (1.52.0)	Production 1.52.0
Editor (1.142.0)	Production 1.142.0
Editor Renderer (1.116.0)	Production 1.116.0
Flash SEO Renderer (1.88.0)	Hotfix
HTML Server (2.67.0)	Snapshot 2.68.0 SN
HTML Web Skins (1.141.0)	RC 1.141.0
Inventory (NULL)	Production 1.7.0
Lists (1.6.0)	Production 1.6.0
Magento (NULL)	Hotfix
MetaSite Manager (2.8.0)	Production 2.8.0
MetaSite Public (2.28.0)	Production 2.28.0
Mobile Server (2.15.0)	Production 2.15.0
Mobile Static Files (1.184.0)	RC 1.184.0
Old Users Server (2.62.0)	Production 2.62.0
Private Media (1.31.0)	Production 1.31.0
Prospero Lighttpd (1.75.0)	Production 1.75.0
Prospero Supervisor (1.31.0)	Production 1.31.0
Public (2.221.0)	Production 2.221.0
Public API (1.25.0)	Production 1.25.0

Deploy

Scaling challenges

- **Deployment complexity**
 - Development velocity → more services
 - Development velocity → Richer use cases -> more dependencies
- **Development complexity**
 - Very hard to work on master/trunk with 30+ dev on same code base
 - backward and forward compatibility is not easy
- **Wider set of technologies ,tools & languages**
 - Higher level of infrastructure investments
 - Harder to have all around players
 - More communication/sync required

Scaling challenges – Cont.

- **Complex Matrix Management**
 - People moving between teams frequently
 - One can have several managers on different tasks
 - Hard both to managers and employees
 - Everyone should master the matrix management skills
- **Product MVP practices**
 - How to define a product that can be development in a day ?
 - And that can win in a/b test ...

It is not all or nothing game - it is continuous journey



