






Firebase

firebase.google.com


DEVELOP

 Realtime Database

 Authentication

 Cloud Messaging

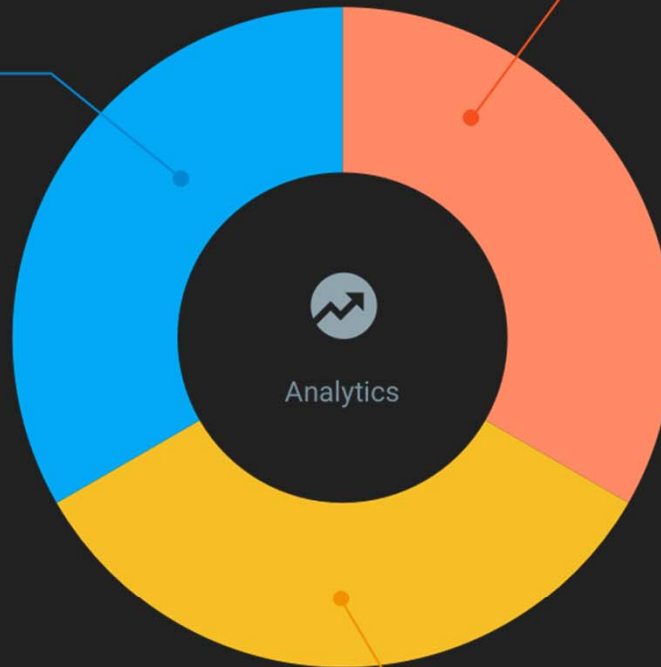
 Storage

 Hosting


 Test Lab


 Crash Reporting


 Functions



GROW

 Notifications

 Remote Config

 App Indexing

 Dynamic Links

 Invites

 AdWords

EARN

 AdMob

Realtime Database



Realtime Database

- Cloud-hosted NoSQL database
- Synchronization & conflict resolution
- Access directly from your app



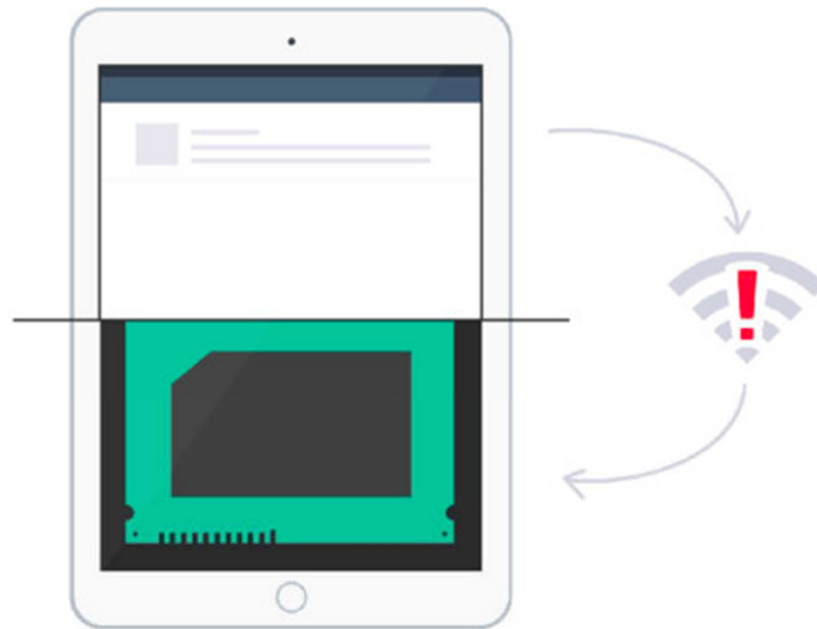


Realtime Database





Realtime Database



Flatten Data Structure

How not to do

```
{  
  // This is a poorly nested data architecture, because iterating the children  
  // of the "chats" node to get a list of conversation titles requires  
  // potentially downloading hundreds of megabytes of messages  
  "chats": {  
    "one": {  
      "title": "Historical Tech Pioneers",  
      "messages": {  
        "m1": { "sender": "ghopper", "message": "Relay malfunction found. Cause: moth." },  
        "m2": { ... },  
        // a very long list of messages  
      }  
    },  
    "two": { ... }  
  }  
}
```


How to do

```
// Chats contains only meta info about each conversation
// stored under the chats's unique ID
"chats": {
  "one": {
    "title": "Historical Tech Pioneers",
    "lastMessage": "ghopper: Relay malfunction found. Cause: moth.",
    "timestamp": 1459361875666
  },
  "two": { ... },
  "three": { ... }
},

// Conversation members are easily accessible
// and stored by chat conversation ID
"members": {
  // we'll talk about indices like this below
  "one": {
    "ghopper": true,
    "alovelace": true,
    "eclarke": true
  },
  "two": { ... },
  "three": { ... }
},
```

```
// Messages are separate from data we may want to iterate quickly
// but still easily paginated and queried, and organized by chat
// conversation ID
"messages": {
  "one": {
    "m1": {
      "name": "eclarke",
      "message": "The relay seems to be malfunctioning.",
      "timestamp": 1459361875337
    },
    "m2": { ... },
    "m3": { ... }
  },
  "two": { ... },
  "three": { ... }
}
```

Rules

Realtime Database



DATA

RULES

USAGE

SIMULATOR

```
1 {
2   "rules": {
3     "widgets": {
4       ".read": true,
5       ".write": "auth != null"
6     },
7     "posts": {
8       ".read": true,
9       ".write": "auth != null",
10      "info": {
11        ".indexOn": ["date"]
12      }
13    }
14  }
15 }
```

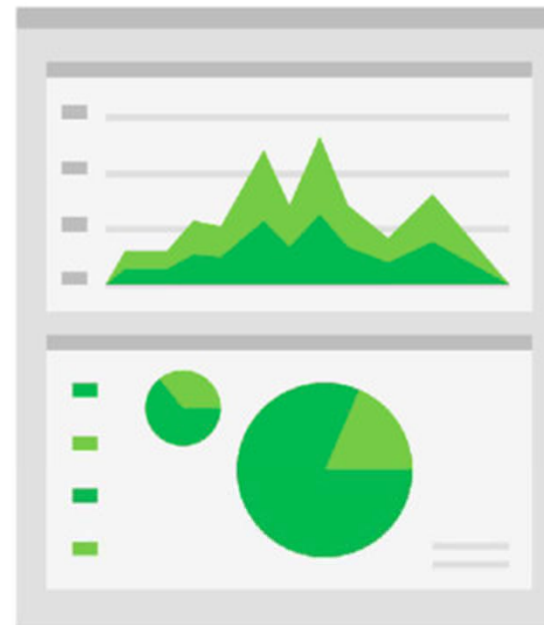
Additional Services



Analytics

This is what investors & stakeholders want to see.

Free & unlimited



Analytics

iOS com.redhotlabs.bingo

Add Filter +

Last 30 days

Compared to Mar 26, 2016 - Apr 24, 2016

[VIEW FIRST OPEN ATTRIBUTION](#)

[VIEW RETENTION COHORT](#)

User engagement

Daily engagement

6d 1h 25m

-36.6%



Daily engagement per user

12m 4s

-3.8%



Sessions per user

1.9

+0%



Avg. session duration

4m 13s

-33.1%



In-app purchases

Users

105

-0.9%



Event count

1.1K

-11.1%



Revenue

\$3,065.14

-3.6%



Product id	Quantity	Product revenue
com.redhotlabs.bingo.1000_pack_chips	21	\$550.29
com.redhotlabs.bingo.40_pack_chips	165	\$542.87
com.redhotlabs.bingo.100_pack_chips	85	\$453.83

[VIEW IN-APP PURCHASE EVENT DETAILS](#)

App version



- 1.9.32: 702
- 1.9.28: 20
- 1.9.29: 5

Devices

Model



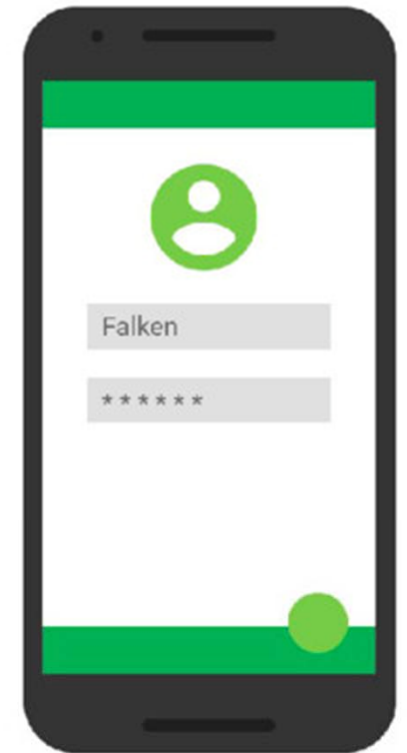
OS version



Authentication

- Authentication & account management
- Supports:
 - Email & password
 - Google, Facebook, Twitter, and GitHub sign-in
 - Existing auth systems

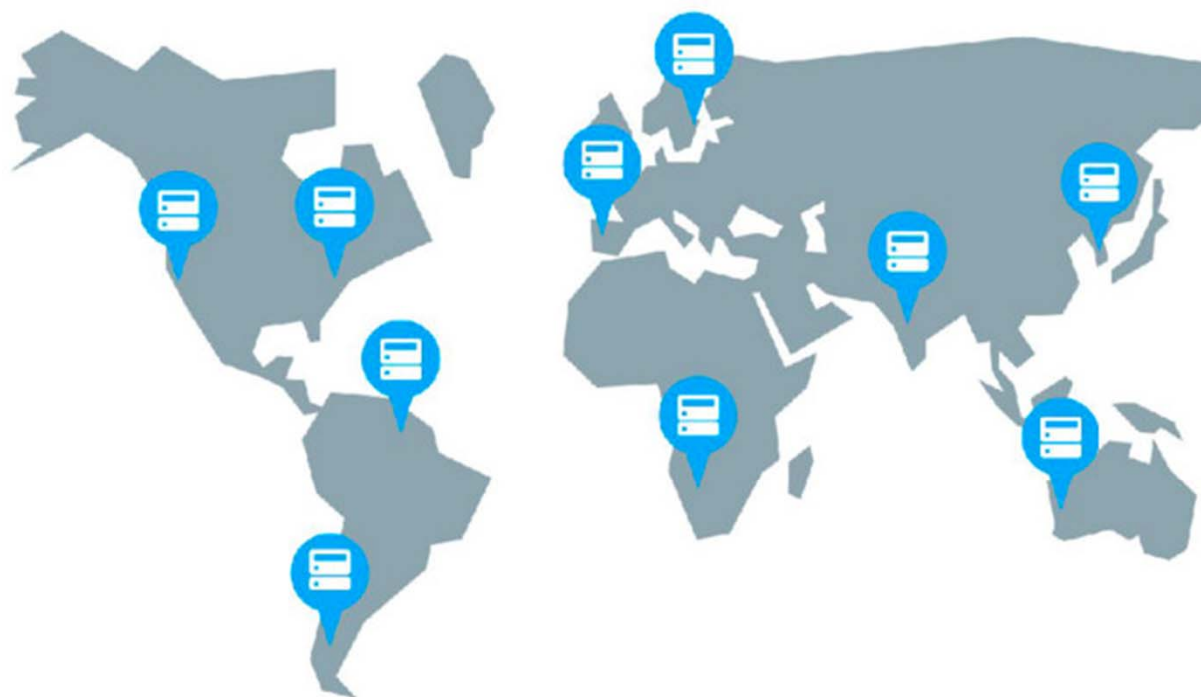
Out-of-the box UI





Hosting

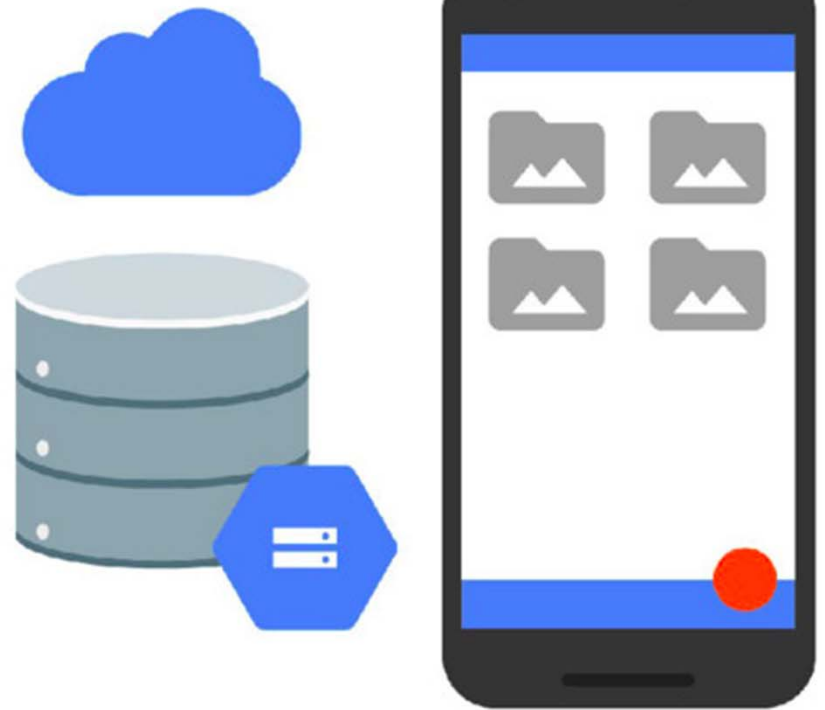
- Serve static assets
- SSL by default
- Custom domains





Storage

- Easy file storage
- Handles poor connectivity
- Backed by & accessible from Google Cloud Storage



My Firebase Project 

 Analytics

DEVELOP

 Auth

 Database

 **Storage**

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 AdMob

Spark Free [UPGRADE](#)

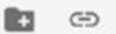
Storage

FILES

RULES

gs://project-2367536679871861449.appspot.com

 **UPLOAD FILE**



<input type="checkbox"/>	Name	Size	Type	Last modified
<input type="checkbox"/>	 000060920031.jpg	1.96 MB	image/jpe...	May 26, 2016

 **000060920031.jpg** 




Name
000060920031.jpg

Size
1.96 MB

Type
image/jpeg

Created
May 26, 2016 1:48:36 PM

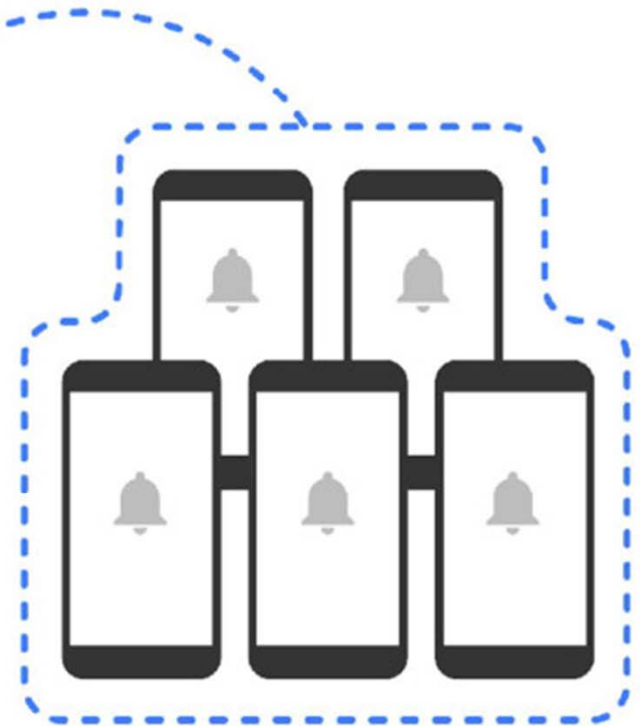
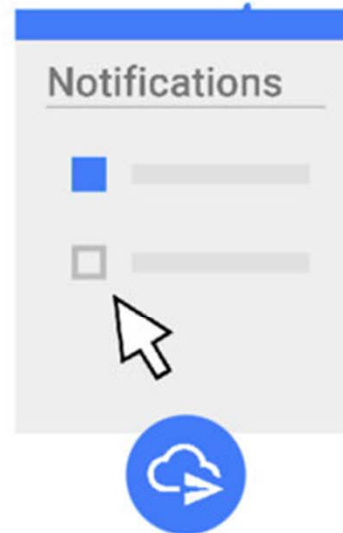
Updated
May 26, 2016 1:48:36 PM

File location 



Notifications

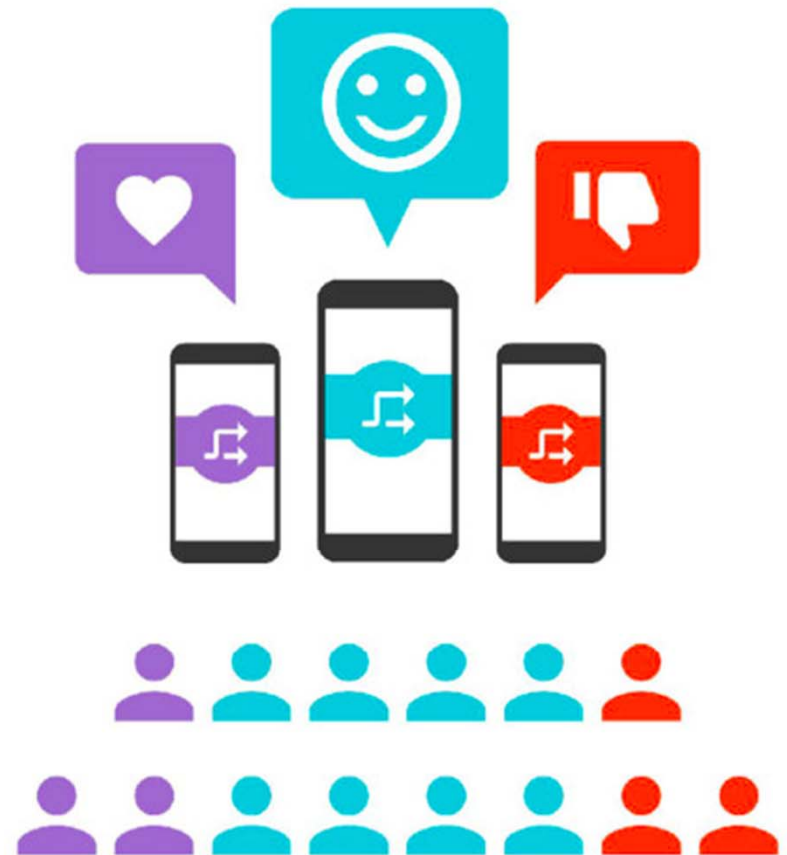
- Simple UI, with no coding
- Built on Cloud Messaging
- Audience targeting
- Conversion funnel insights





Remote Config

- Server-side variables
- Modify without deploying
- Integrated with Analytics



Remote Config

PARAMETERS

CONDITIONS

Analytics

DEVELOP

Auth

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AdMob

NEW CONDITION

= iOS Users

applies if OS type is Android

= Android Users

applies if OS type is Android

= 10% - Experiment A

applies if User in random percentile <= 10 %

= Canadian Purchasers

applies if App ID is com.redhotlabs.bingo
and User in audience is Canadian Purchasers

Affects 1 parameter, including level_3_time

= AU purchaser

applies if App ID is com.redhotlabs.bingo
and User in audience is Australian Purchasers

Affects 1 parameter, including level_1_time

Remote Config

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Blaze
Pay as you go

MODIFY

ADD PARAMETER

level_1_time AU purchaser 50
 Default value 70

level_2_time 50

Parameter key

level_3_time

Value for Canadian Purchasers

50

Add value for condition

DELETE

Default value

40



CANCEL

UPDATE

level_4_time 35

level_5_time 30





Crash Reporting

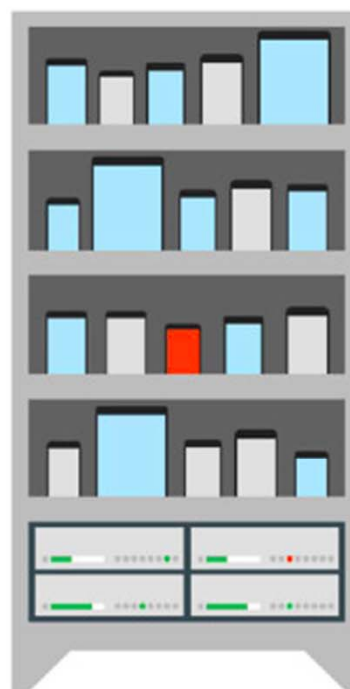
- See crashes & impact
- Version & OS drill-down
- Integrated with Analytics





Test Lab for Android

- Test on the most popular devices before you ship
- Reports & screenshots
- Robo & custom tests





I'm Hungry

← Matrix #905493

Analytics

DEVELOP

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Blaze

Pay as you go

MODIFY



Robo test, 9 days ago ⓘ

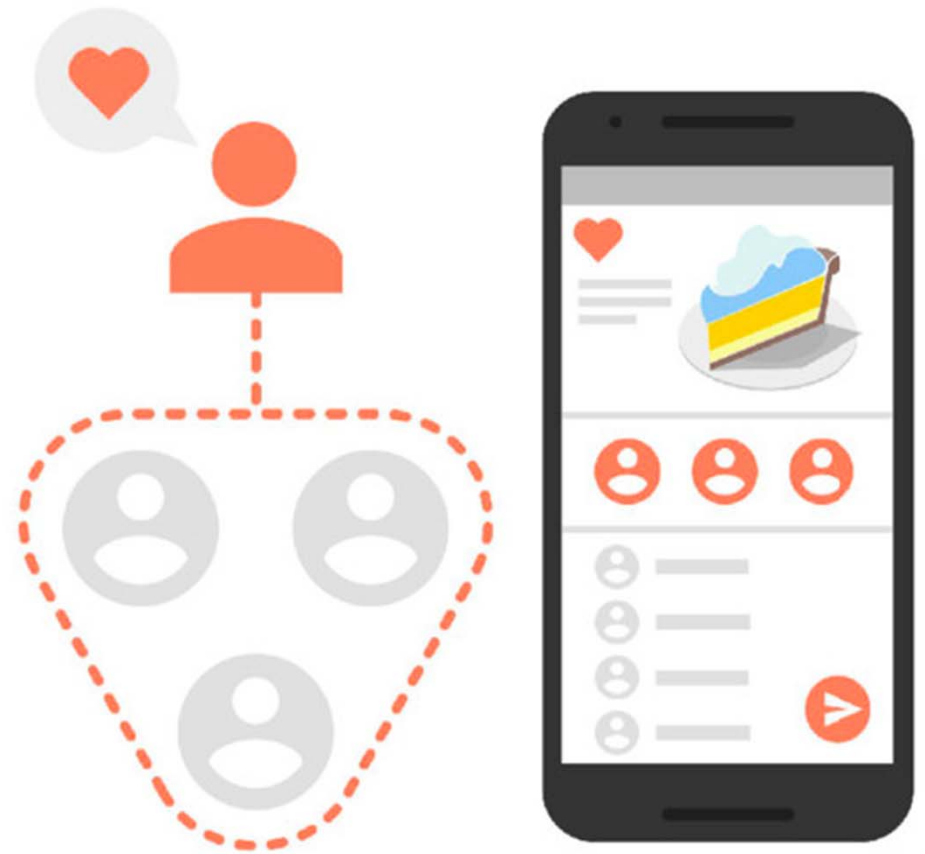
Failed	Passed	Skipped	Inconclusive
0	10	6	0

Test execution	Duration	Locale	Orientation	Issues
✓ Moto X, API Level 19	10 min 57 sec	English, United States	Landscape	—
✓ Galaxy S6, API Level 22	10 min 19 sec	English, United States	Portrait	—
✓ Nexus 5, API Level 22	11 min 57 sec	English, United States	Landscape	—
✓ LG G3, API Level 19	11 min 12 sec	English, United States	Landscape	—
✓ Nexus 5, API Level 22	11 min 27 sec	English, United States	Portrait	—
✓ Galaxy S6, API Level 22	10 min 42 sec	English, United States	Landscape	—
✓ LG G3, API Level 19	10 min 51 sec	English, United States	Portrait	—
✓ Nexus 5, API Level 19	11 min 28 sec	English, United States	Landscape	—
✓ Moto X, API Level 19	9 min 15 sec	English, United States	Portrait	—



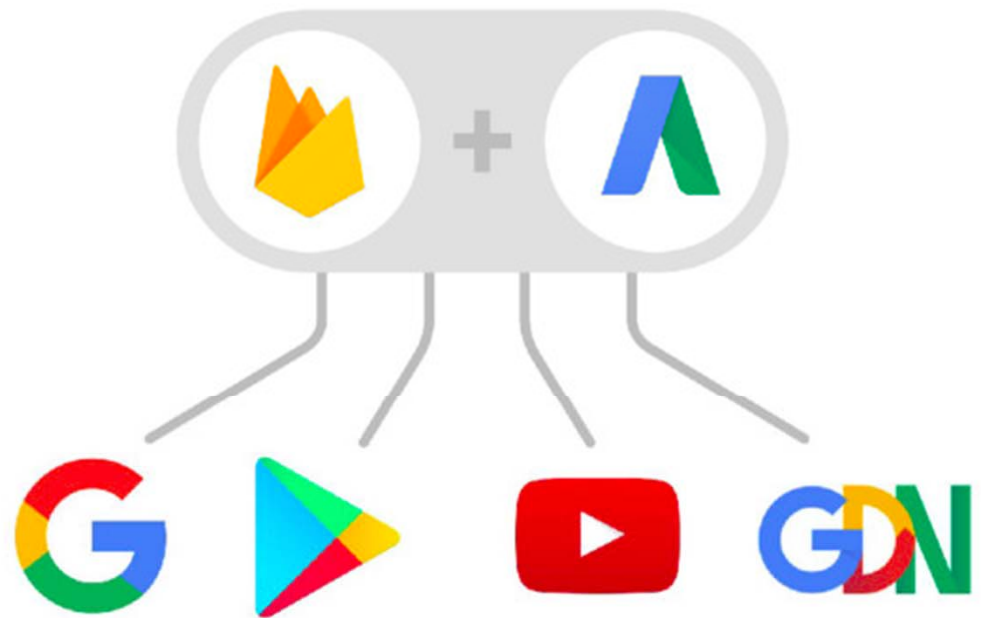
Invites

- Drop-in widget for app sharing
- Supports SMS and Email
- Recipient suggestions from Google
- Built on Dynamic Links



Google AdWords

- Reach Potential Customers with online Ads
- Drive Installs of your App
- Linked with Firebase Analytics for targeted ads and business intelligence





App Indexing

- Integrate with Google Search
- Index app content
- Boost search ranking





Cross-platform

		SPARK Free <small>Generous limits for hobbyists</small>	FLAME \$25 per month <small>Predictable pricing for growing apps</small>	BLAZE Pay as you go <small>Commodity pricing for apps at scale</small>
Realtime Database	Simultaneous connections	100	Unlimited ¹	Unlimited ¹
	GB stored	1 GB	2.5 GB	\$5/GB/month
	GB downloaded	10 GB/month	20 GB/month	\$1/GB
	Automated backups	✗	✗	✓
Storage	GB stored	5 GB	50 GB	\$0.026/GB ²
	GB downloaded	1 GB/day	50 GB/month	\$0.12/GB ²
	Upload operations	20,000/day	100,000/day	\$0.10/thousand ²
	Download operations	50,000/day	250,000/day	\$0.01/thousand ²
Functions	Invocations	125,000/month	2,000,000/month	\$0.40/million ³
	GB-seconds	40,000/month	400,000/month	\$0.0025/thousand ³
	CPU-seconds	40,000/month	200,000/month	\$0.01/thousand ³
	Outbound networking	Google-only ³	5GB/month	\$0.12/GB ³
Hosting	GB stored	1 GB	10 GB	\$0.026/GB
	GB transferred	10 GB/month	50 GB/month	\$0.15/GB
	Custom domain hosting & SSL	✓	✓	✓
Test Lab	Daily quota or hourly rate	15 tests/day ⁴	15 tests/day ⁴	hourly, per device ⁴
Google Cloud Platform	Use BigQuery & other IaaS ⁶	✗	✗	✓



Angular Fire

<https://github.com/firebase/angularfire>

<https://github.com/angular/angularfire2>

15:15 Introduction to Realm Mobile Platform
by Anton Minashkin

Thanks!

Jaroslav Khorishchenko

Slack: [@jaroslav \(http://slack.io.kr.ua/\)](http://slack.io.kr.ua/)

Telegram: [@ideveloper](https://t.me/ideveloper)

VK: <http://vk.com/snipster>

FB: <https://www.facebook.com/snipster>