



# Cloud Computing

Leveraging cloud computing to start a tech company or to solve business problems

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# Cloud Profits



“Microsoft ranks second in the cloud computing market. Microsoft accounted for 11% of the global market for public cloud services in Q4 2016. Its main cloud offerings, **Microsoft Azure** and the cloud version of Office 365, grew **93%** and 45% YoY, respectively. Microsoft is hoping to rely less on personal computer software.”

Business Insider – May 1, 2017

# 1 Productivity software provisioning & management

## If you currently...

License productivity software for each individual device

## Consider the cloud...

Get productivity apps through a subscription model with Office 365 and get tools available across devices.

- Always up-to-date
- Cost-effective
- Enhanced collaboration

# 2 Email and messaging

## If you currently...

Manage your own on-premises email server or use consumer-grade email

## Consider the cloud...

Access business-class email configured and managed by dedicated experts with Exchange Online in Office 365.

- Latest features
- No servers to manage
- Robust security and anti-malware

# 3 File Sharing

## If you currently...

Host a file server in your own office

## Consider the cloud...

Store and synchronize files using OneDrive for Business.

- Access files anywhere
- Always have the latest versions synced and ready
- Share more securely using links instead of email

# 4 Backup and recovery

## If you currently...

Back up to hardware in the same location as your main computer.

## Consider the cloud...

Back up data to the cloud with Azure Backup so your data is safe no matter what happens in your offices.

- Get back to work faster after a disaster
- Keep more data available
- Reduce storage cost and risk

# 5 Customer Relationship Management

## If you currently...

Keep track of customers using software installed on your computer or on a local server.

## Consider the cloud...

Get Dynamics CRM Online, a fully-managed CRM platform that grows with your business.

- Access customer information wherever you are
- Get a 360-degree view of your customer
- Gain insights with analytics



## Top 5 workloads your competitors are moving to the cloud

With a wealth of powerful solutions on the market today, competitors who are taking a more aggressive approach could be speeding time to market, reducing costs, enhancing agility, and accelerating innovation. Don't get left behind. Here are five workloads that can be adopted by almost any business.



# Five Disruptive Digital Trends

- Mobile Internet
- The Internet of Things
- Knowledge Work Automation
- Cloud Technology
- Big Data



# The Microsoft Cloud

- Azure - a growing collection of integrated cloud services that developers and IT professionals use to build, deploy, and manage applications through a global network of datacenters.

Compute	Internet of Things
Networking	Enterprise Integration
Storage	Security + Identity
Web + Mobile	Developer Tools
Databases	Monitoring + Management
Intelligence + Analytics	Microsoft Azure Stack



# Microservices

- Containers in the cloud
- Applications made up of loosely coupled services
- REST – based interfaces
- Find a niche and fill it

# Cloud Apps



- Utilizing existing public data sources
- Neighborhood watch app
- Scrapes law enforcement dispatch log
- Calls microservice to do geolocation
- Uses Twilio for SMS messages

## Current Events

Event Number	Time	Description	Location	Cross Street
C2017025244	20170502171824	CD VEHICLE STOLEN	AUTRY DR, COUNTY	CHELSEA RD
C2017025237	20170502163817	CD MOTOR VEHICLE ACCIDENT	HWY 280, BIRMINGHAM	TURTLE LAKE DR
C2017025243	20170502170934	CD LE-ASSIST AGENCY	MEADOW DR, BIRMINGHAM	DEAD END

## Last 24 Hours

Event Number	Time	Description	Location	Cross Street
C2017025245	20170502171934	CD PATROLREQ ACTIVE	PRESTON PL, COUNTY	FAIRBANK WAY
C2017025241	20170502170832	CD MOTOR VEHICLE ACCIDENT	HWY 280, BIRMINGHAM	E INVERNESS PKWY
C2017025236	20170502165028	CD ALARM BURGLARY	EAGLE POINT CIR, BIRMINGHAM	EAGLE VALLEY DR
C2017025239	20170502164109	CD PATROLREQ ACTIVE	C2017024218, BIRMINGHAM	
C2017025238	20170502163435	CD PATROLREQ ACTIVE	C2017023754, BIRMINGHAM	
C2017025228	20170502163300	CD MOTOR VEHICLE ACCIDENT	UNLISTED LOCATION	HWY 280
C2017025235	20170502163039	CD STOPPING A VEHICLE	UNLISTED LOCATION	SOUTH RIVER RD
C2017025233	20170502162644	CD STOPPING A VEHICLE	UNLISTED LOCATION	HWY 39
C2017025232	20170502162134	CD PATROLREQ ACTIVE	C2017023626, COUNTY	
C2017025219	20170502161820	CD ANIMAL COMPLAINTS	LEAF DR, HARPERSVILLE	WILLOW LEAF RD
C2017025230	20170502161513	CD STOPPING A VEHICLE	UNLISTED LOCATION	HWY 25
C2017025229	20170502161425	CD PATROLREQ ACTIVE	MEADOW RIDGE CT, BIRMINGHAM	MEADOW RIDGE DR
C2017025198	20170502160312	CD PAPER COURT_ORDER	LAKE FOREST WAY, COUNTY	WATER HICKORY DR
C2017025213	20170502160102	CD PAPER COURT_ORDER	LAKE FOREST WAY MAY, COUNTY	
C2017025224	20170502160019	CD TRAFFIC DUI	HWY 280, BIRMINGHAM	





# Azure for Free



## App Service

Quickly build and host up to 10 web and mobile apps on any platform or device.



## Azure Active Directory

Get support for up to 500,000 directory objects and single sign-on for up to 10 apps per user.



## Notification Hubs

Send up to 1 million push notifications per month free, broadcast them to millions of users at once, or tailor them to individual users.



## Virtual Network

Create your private network in the cloud with up to 50 free virtual networks.



## Machine Learning

Start building advanced analytics in the cloud today by creating machine learning experiments.



## IoT Hub

Get up to 3,000 free messages per day allowing you to monitor and control up to 10 of your IoT devices.



## Mobile Engagement

Maximize mobile apps usage and revenue with up to 100 monthly users free per month on our data-driven user engagement platform.



## Log Analytics

Turn up to 500 MB of operational data per month into actionable insights about your IT operations.

# Azure App Service



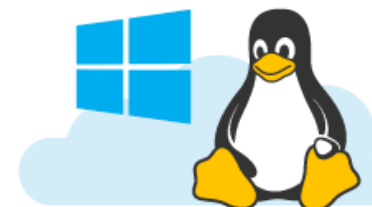
## High-productivity development

Integrate App Service into your existing frameworks, languages, and tooling to accelerate your development. Rapidly build, deploy, and manage powerful web, mobile, and API apps for employees or customers using a single back-end. Build standards-based web apps and APIs using .NET, Java, Node.js, PHP, and Python.



## Fully-managed platform and app hosting

DevOps teams can configure App Service from the Azure portal or command line interface to meet the operational needs of the app. Unified development and management experiences eliminate the confusion of disparate services and providers, resulting in less navigation and lower overhead. Experience unparalleled developer productivity with cutting-edge capabilities such as continuous integration, live-site debugging, and the industry-leading Visual Studio IDE. Both Windows- and Linux-based platform options are available.



## Enterprise-grade apps

The enterprise-grade global data center network, security, and compliance level of the Azure platform mean you can build and host your apps with confidence. Create apps and automate business processes faster with a wealth of pre-built apps, API services, and recipes in the Azure Marketplace. Easily find and use what you need to get the job done with access to a broad range of components and services delivered by Microsoft, certified vendors, and the broader open-source developer community.



# Internet of Things

- Huge opportunities for innovative ideas
- Learning opportunities in Azure
- Inexpensive devices
  - Raspberry Pi
  - Arduino
- Software solutions offer residual income
- <https://www.Microsoft.com/en-us/internet-of-things/>
- <https://azure.microsoft.com/en-us/services/iot-hub/>

# Azure IoT Hub



The screenshot shows the Microsoft Azure IoT Hub landing page. The background is a dark, semi-transparent overlay on a photograph of a yellow industrial robotic arm. The page layout includes a top navigation bar with the 'Microsoft Azure' logo, contact information, and account links. Below this is a secondary navigation bar with links to various Azure services. The main content area features the 'IoT Hub' title, a descriptive tagline, a list of six key benefits, and a prominent green button to get started. At the bottom, there are links to explore IoT Hub further through pricing and documentation.

Microsoft Azure

SALES 1-800-867-1389 ▼ | MY ACCOUNT | PORTAL | Search

Why Azure | Solutions | Products | Documentation | Pricing | Partners | Blog | Resources | Support

**FREE ACCOUNT** >

## IoT Hub

Connect, monitor, and manage billions of IoT assets

- ✓ Get started quickly
- ✓ Connect and manage billions of IoT devices and assets
- ✓ Support a broad set of operating systems and protocols
- ✓ Establish reliable, bi-directional communication
- ✓ Enhance the security of your IoT solutions
- ✓ Ingest real-time data and upload files to the cloud

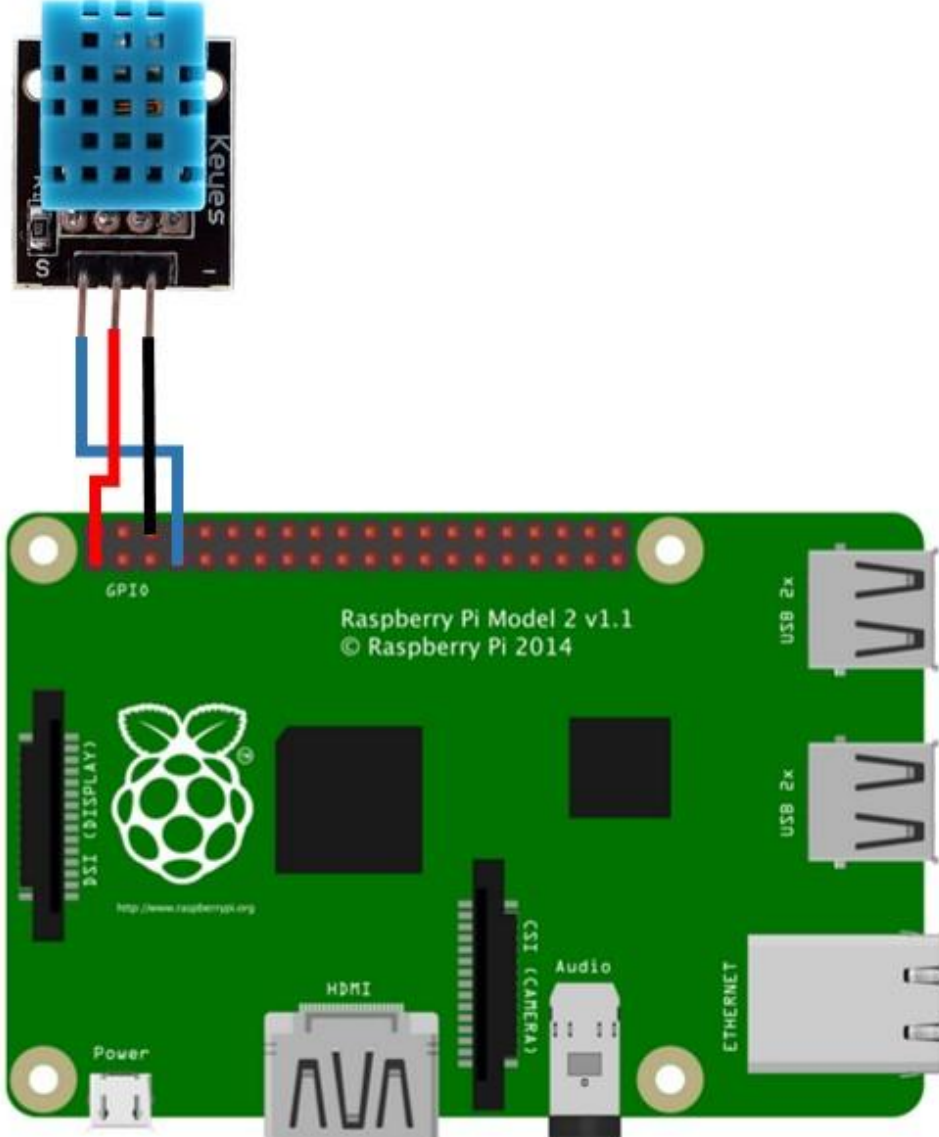
**Get started with IoT Hub** >

Explore IoT Hub: [Pricing details](#) [Documentation](#)

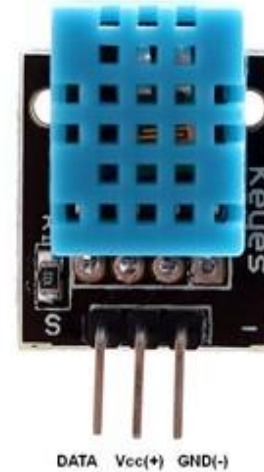


# DHT11

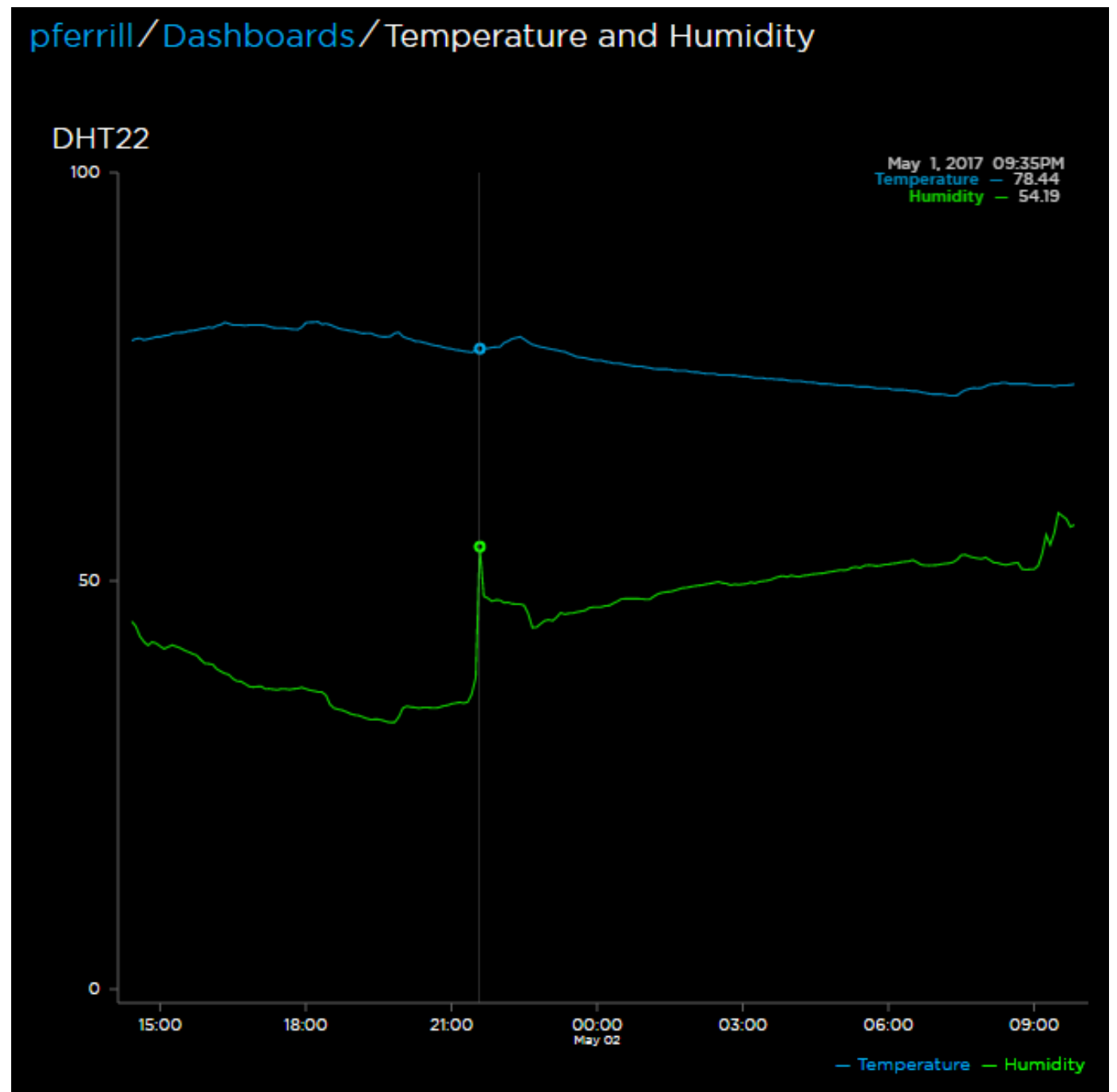
(Temperature & Humidity Sensor)



3.3V PWR	1		2	5V PWR
I2C1 SDA	3		4	5V PWR
I2C1 SCL	5		6	GND
GPIO 4	7		8	Reserved
GND	9		10	Reserved
SPI1 CS0	11		12	GPIO 18
GPIO 27	13		14	GND
GPIO 22	15		16	GPIO 23
3.3V PWR	17		18	GPIO 24
SPI0 MOSI	19		20	GND
SPI0 MISO	21		22	GPIO 25
SPI0 SCLK	23		24	SPI0 CS0
GND	25		26	SPI0 CS1
Reserved	27		28	Reserved
GPIO 5	29		30	GND
GPIO 6	31		32	GPIO 12
GPIO 13	33		34	GND
SPI1 MISO	35		36	GPIO 16
GPIO 26	37		38	SPI1 MOSI
GND	39		40	SPI1 SCLK



io.adafruit



# Azure IoT Hub

The screenshot displays the Azure IoT Hub Device Management interface for a resource named **pfIoT**. The interface is divided into a left-hand navigation pane and a main content area.

**Navigation Pane (Left):**

- Overview** (highlighted)
- Activity log
- Access control (IAM)
- SETTINGS**
  - Locks
  - Export template
- GENERAL**
  - Shared access policies
  - Messaging
  - File upload
  - Pricing and scale
  - Operations monitoring
  - Diagnostics
- SUPPORT + TROUBLESHOOTING**
  - New support request

**Main Content Area (Right):**

**Essentials**

Property	Value
Resource group	IoT
Status	Active
Location	East US
Subscription name	StorSimple Portfolio Expansion (POC)
Subscription ID	5b21d312-681b-46a1-96b2-38e94ac33b77
Hostname	pfIoT.azure-devices.net
Pricing and scale tier	F1 - Free
IoT Hub units	1

**Usage**

8/16/2016 UTC  
PFIOT

**MESSAGES**  
35 / 8k

**DEVICES**  
1

**Monitoring**

Monitoring  
PFIOT



# Data Science

- Big Data is all about taking advantage of existing collections of data to glean insights into your business
- Heavy on algorithms, statistics, math
- Lots of open source tools
- Microsoft Data Science virtual machines available in Azure

<https://azuremarketplace.microsoft.com/en-us/marketplace/apps/microsoft-ads.standard-data-science-vm>

- Channel 9 - <https://channel9.msdn.com/>





# Links

- <https://azure.microsoft.com/en-us/>
- Slides - <https://github.com/pferrill/Presentations>
- Twitter - @paulferrill
- Blog - <http://paulferrill.azurewebsites.net/>
- Redmond Magazine
- InfoWorld.com
- ServerWatch.com
- PCMag.com