

# Microsoft Digital Crimes Unit

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# Microsoft Digital Crimes Unit (DCU)



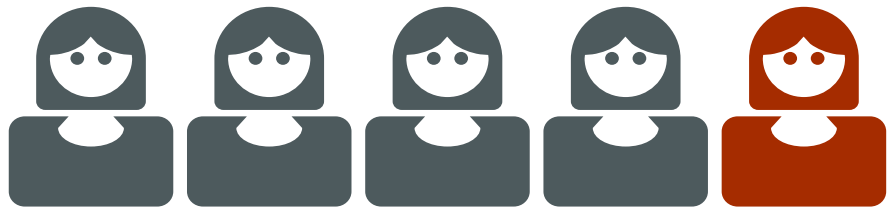
Fighting  
malware  
and reducing  
digital risk



Protecting  
vulnerable  
populations

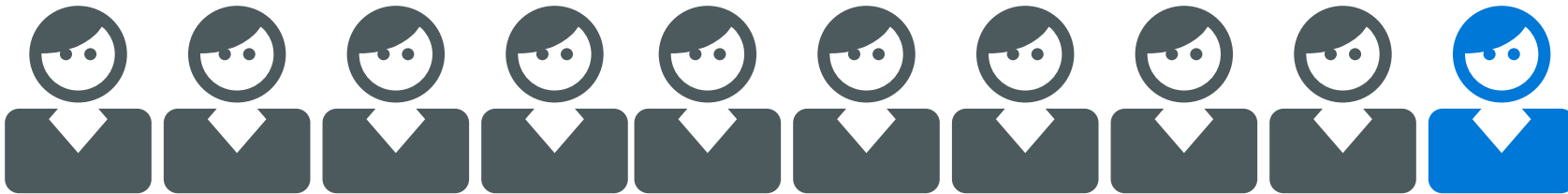
# The Problem

1 in 5 girls



will be  
sexually abused  
by the age of 18.

1 in 10 boys







# 500

images of sexually abused children  
will be traded online approximately  
**every 60 seconds.**







# 1.8 billion

images are uploaded  
and shared online  
*every single day.*

finding a child sexual abuse  
image out of the billions is like  
*finding a needle in a haystack*



# Microsoft and Child Online Protection

## Why PhotoDNA



### Protect

Safer and more secure online experiences free from illegal, objectionable, and unwanted content.



### Educate

Help to inform the global public about online risks and how to mitigate them.



### Partner

Through innovation and public/private partnership DCU is advancing the fight against child exploitation.

PhotoDNA Cloud Service is a **FREE** service for qualified customers and developers.



PhotoDNA Cloud Service

## The Solution

Microsoft partnered with the National Center for Missing and Exploited Children (NCMEC) and Dartmouth College to develop **PhotoDNA** - a technology that helps find the worst of the worst child exploitation images online.



1  
Child exploitation image identified by NCMEC or other trusted sources



2  
PhotoDNA creates a unique digital signature (a hash) similar to a fingerprint



3  
Hash of known bad image is compared to a hash of an image on your platform



4  
Even an altered image can be found based on comparing hashes



5  
**MATCH FOUND!**

Matches trigger actions that disrupt online child exploitation

Images from  
your platform





# Protecting Vulnerable Populations

PhotoDNA

PhotoDNA has helped detect millions of illegal images online

Over 100 organizations use the technology to keep their platforms safe

Illegal images are reported to the National Center for Missing and Exploited Children and other appropriate authorities

facebook

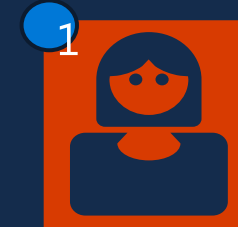


Microsoft

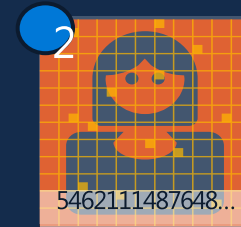
NetClean



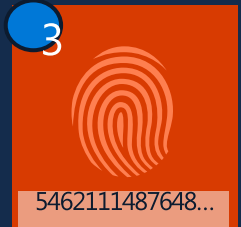
Microsoft partnered with Dartmouth College to develop **PhotoDNA**—a technology that helps find child exploitation images online.



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PhotoDNA creates a unique digital signature (a hash) similar to a fingerprint.



Hash of known bad image is compared to a hash of an image on your platform



Even an altered image can be found based on comparing hashes



Matches trigger actions that disrupt online exploitation

Free cloud-based service  
[www.microsoft.com/photodna](http://www.microsoft.com/photodna)

# Don't become the next headline



## Ex-Denton high school teacher admits to forcing boys to send him nude photos



Kevin Krause

Published: October 15, 2014 12:29 pm



A former Denton High School teacher pleaded guilty Wednesday in federal court to two counts of production of child pornography, the U.S. attorney's office said.

Gregory Bogomol, 38, of Fort Worth, **coerced two boys into sending him sexually explicit photos of themselves** in April, authorities said. Bogomol posed as a teenage girl online and sent nude images of women to get boys to send him sexually explicit photos of themselves, records show.

Bogomol, who taught journalism, has been in federal custody since his arrest in May. He resigned from the school the week before his arrest.

He has also worked as a freelance sports reporter for *The Dallas Morning News* and *Fort Worth Star-Telegram*.

## Authorities warning parents to protect kids from online predators

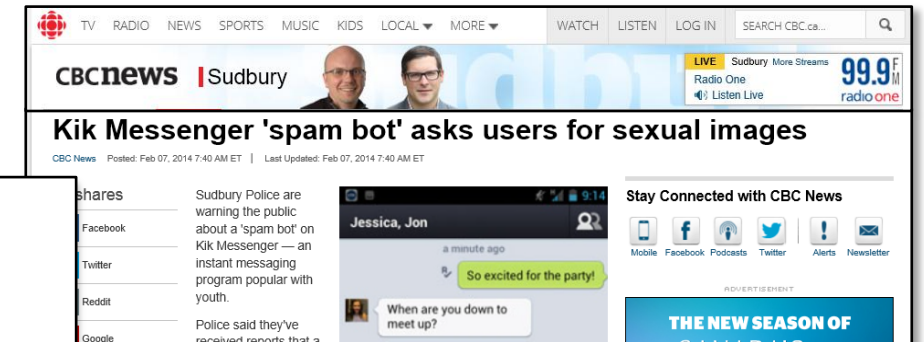
Author: Jeff Humphrey, KXLY4 Reporter, [jeffhu@kxly.com](mailto:jeffhu@kxly.com)

Published On: Oct 09 2014 06:49:04 PM PDT

SPOKANE, Wash. -

Spokane County Sheriff's sex crimes detectives say there are a couple of new websites like Kick and Omegle that have become hunting grounds for pedophiles looking to make secret connections with children.

If a man in his mid-20s showed up at your front door asking for your 8th grade daughter you'd help him off your property, not to mention call 911, so why do we give our children smartphones that can give that same person face to face access to our kids without us even knowing about it? Detectives say without a lot of restrictions teens and cell phones are inviting trouble.





# PhotoDNA Cloud Service:

## An intelligent solution for CSAM



### Secure

Images are instantly converted to secure hashes and cannot be recreated. Images are never retained by Microsoft.



### Efficient

Reduce the cost and increase the speed of detecting and reporting child sexual exploitation images.



### Interoperability

Integrate via REST API on any platform or environment.

# PhotoDNA updated



## Microsoft updates its PhotoDNA software used to help fight online child pornography

**Accelerate matching speeds by 10-20 times**

KELLOGG BRENGEL EMAIL @KELLOGGBRENGEL

DEC 21, 2015 AT 10:11 AM



1 COMMENTS



# Ideal Technology for Enterprise Customers

## Intended Audience

- Trusted commercial online service providers and businesses hosting user-generated content.

## Internal Services of Enterprise Customers

- Keep internal platform clean.
- Users upload images on the company platform.
- Customer stores millions of images, and while the vast majority are benign, they want to be pro-active in the fight against this type of abuse.

## External Content Hosters

- Customers uploading content to the host service.
- Unwanted, illegal, or objectionable user-generated content harms host's brand and reputation.

# Protecting Vulnerable Populations

## Technical Support Scams

### The Scheme:

Fraudsters pose online and on phone as tech support from high tech companies including Microsoft

A victim is often asked for remote access and charged for unnecessary technical services

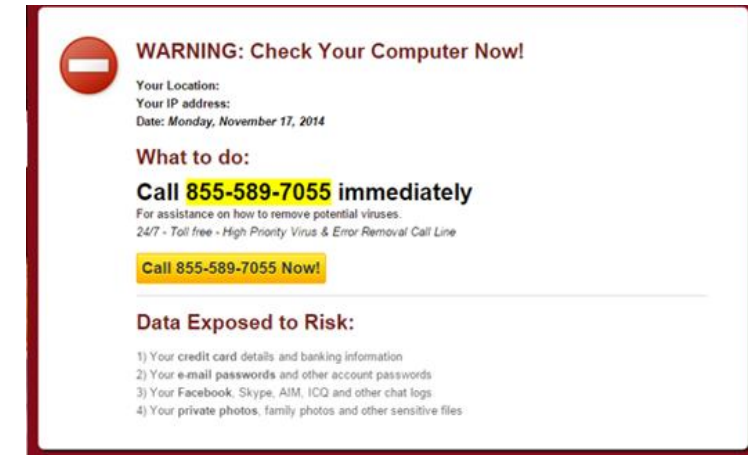
Victims may lose money, personal information or be exposed to malware

### Microsoft Taking Action:

DCU investigates tech fraud cases globally building evidence to take action

Education programs through media, Microsoft Retail Stores, and the Cybercrime Center

[www.support.microsoft.com/reportascam](http://www.support.microsoft.com/reportascam)







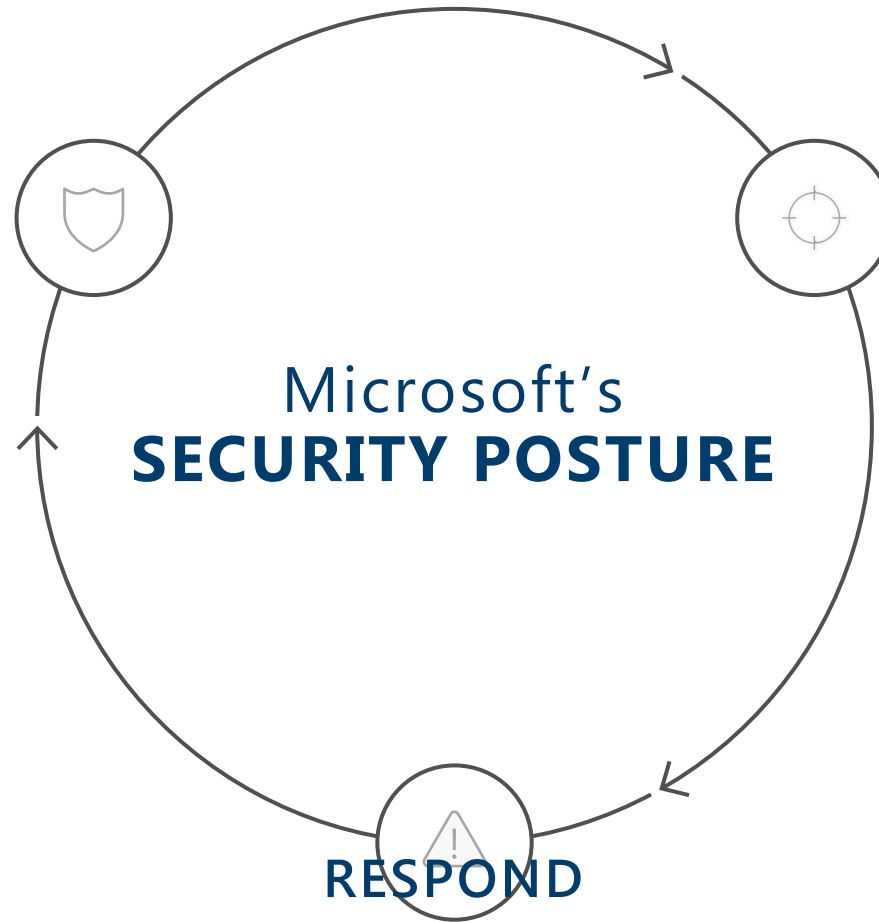
# MICROSOFT'S **UNIQUE** PERSPECTIVE

**300B** user authentications each month

**1B** Windows devices updated

**200B** emails analyzed for spam and malware

**PROTECT**  
across all endpoints, from  
sensors to the datacenter



**DETECT**  
using targeted signals, behavioral  
monitoring, and machine learning

**RESPOND**  
closing the gap between discovery and action



# The Microsoft Digital Crimes Unit

A safer digital experience for every person and organization on the planet

Combining novel legal strategies, cutting-edge forensics, cloud and big data analytics

Public and private partnerships to fight technology facilitated crimes



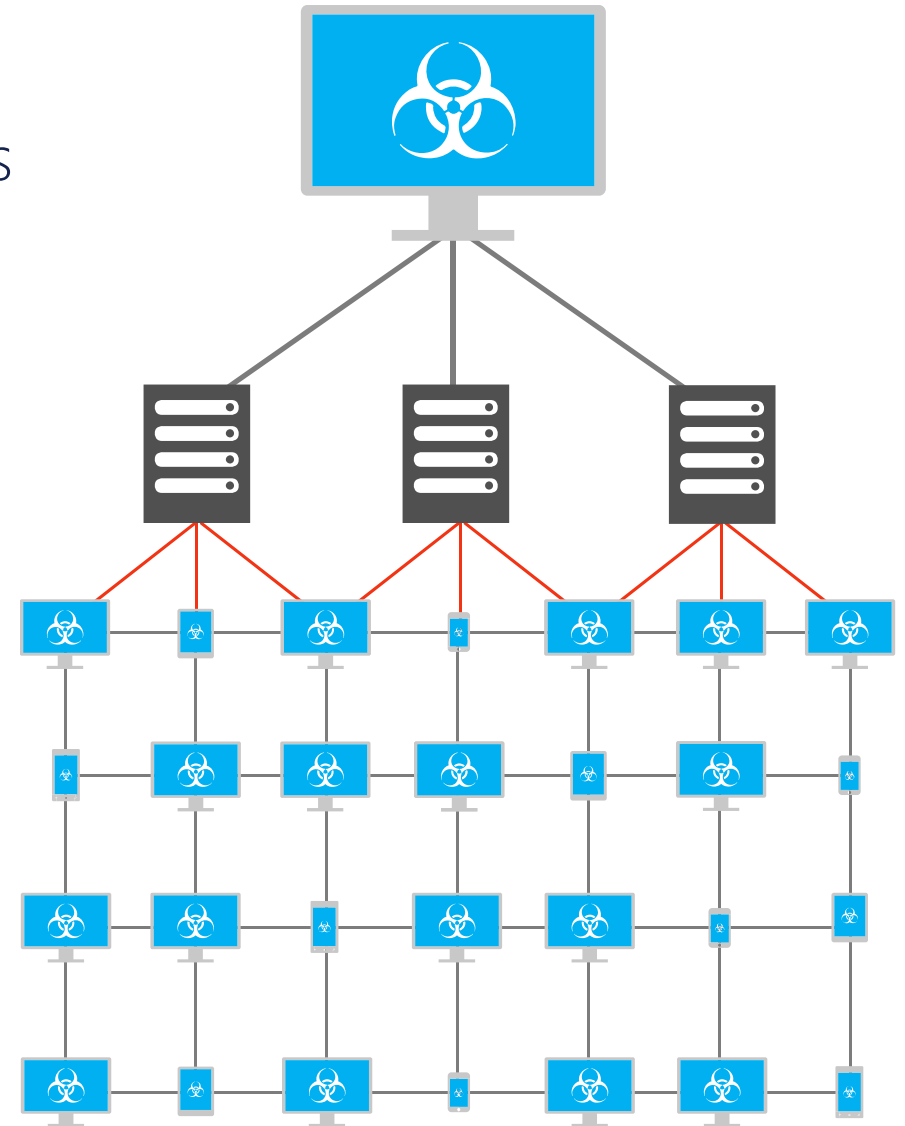
# Malware Disruptions

Working with Law Enforcement and others to disrupt the criminal infrastructure

DCU acquires targets, investigates, and orchestrates global partnerships to take action

We enable CERTs/ISPs globally to notify and remediate

Our malware intelligence is embedded into Microsoft's products and services



# Public and Private Partnerships

Driving scale and impact

Deep relationships with public and private partners allow DCU to orchestrate international malware disruptions

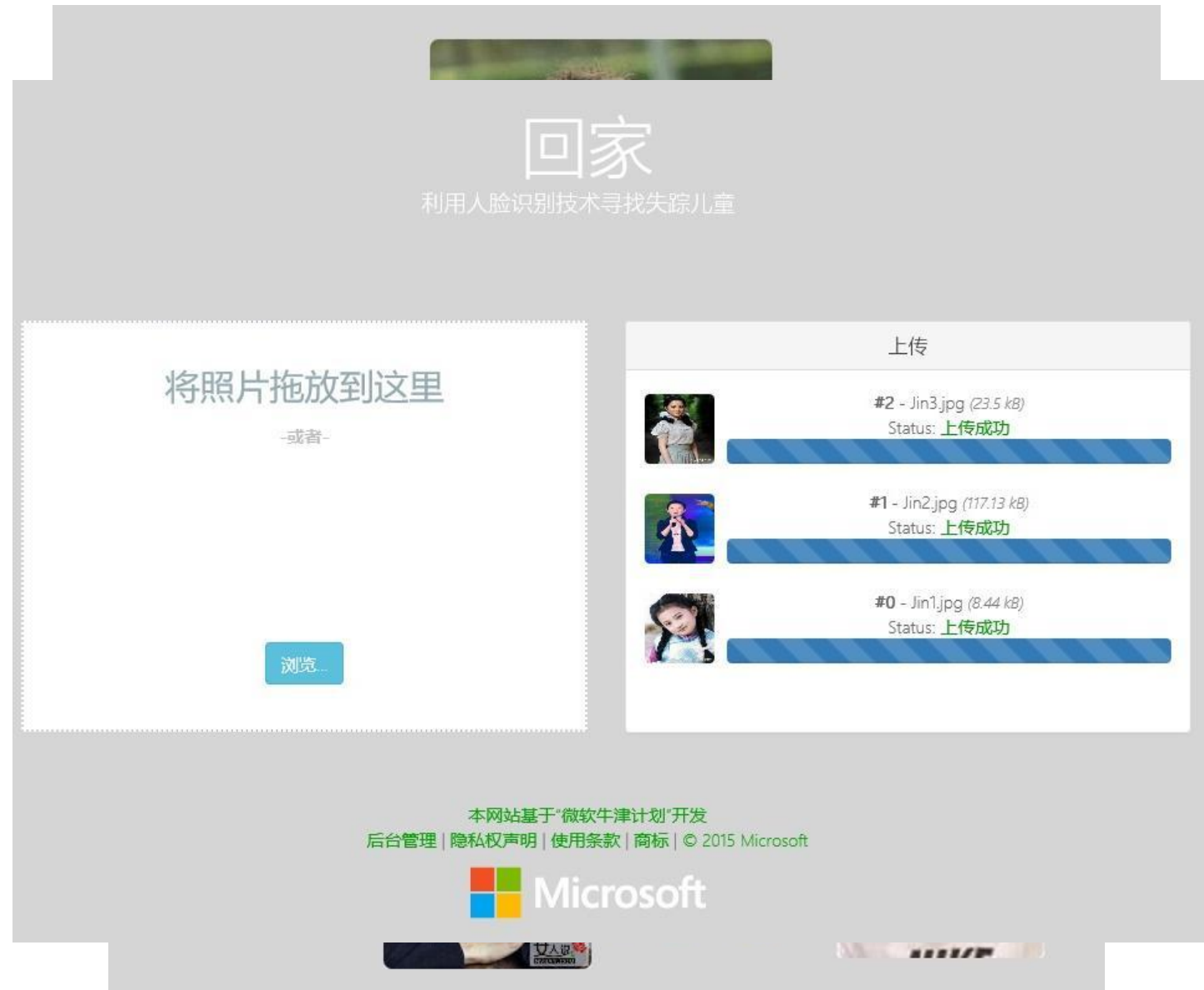




# Our Application – Hackathon 2015



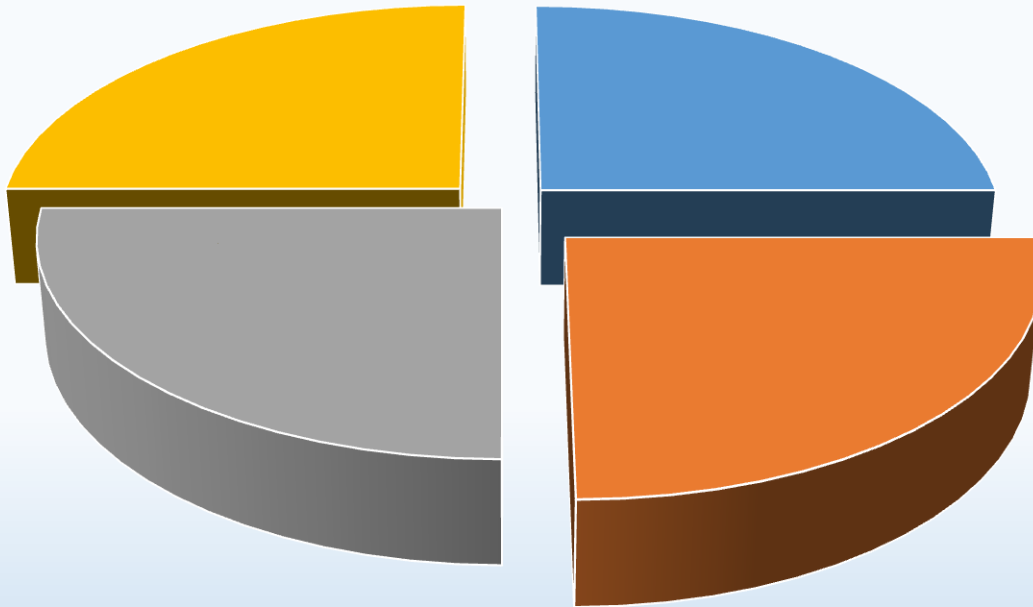
- Photo Missing Children (PhotoMC) is an application designed to help find missing children by using Microsoft face recognition technology.
- Our application allows individuals to upload photos of missing children, along with identifying information, to a database on the cloud.
- If an at-risk child is spotted, a user can take a picture, upload it, and PhotoMC will search the database for matches.



# Our Application – Hackathon 2015 Project

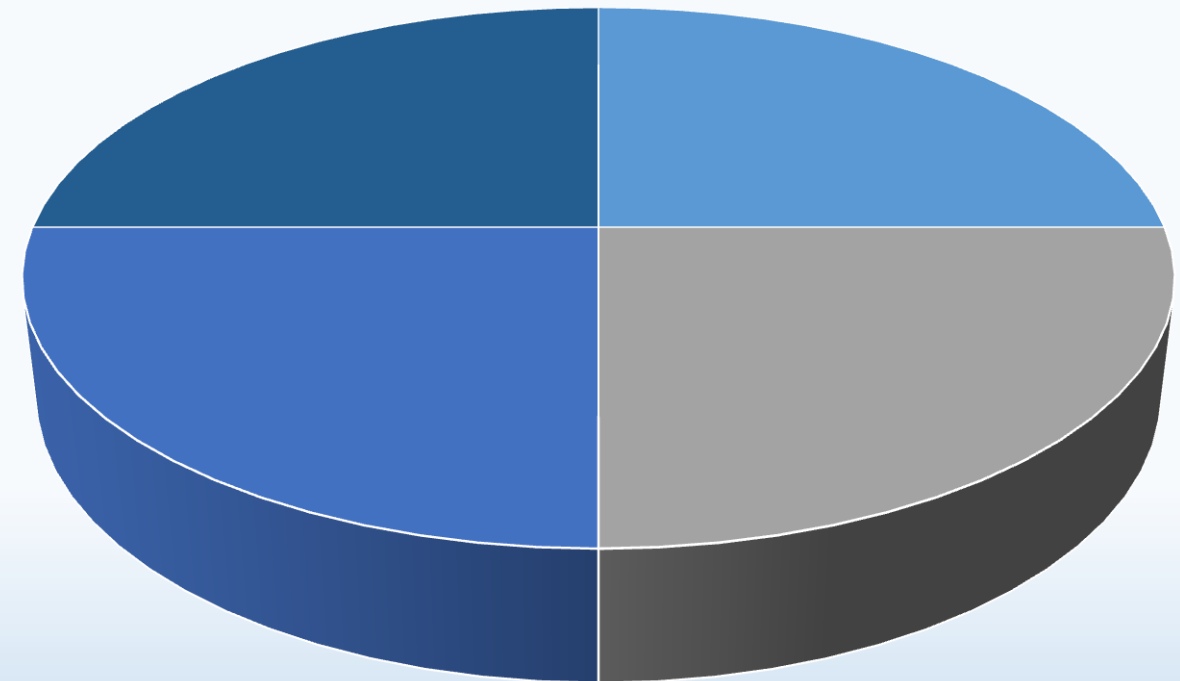


## Client Platform



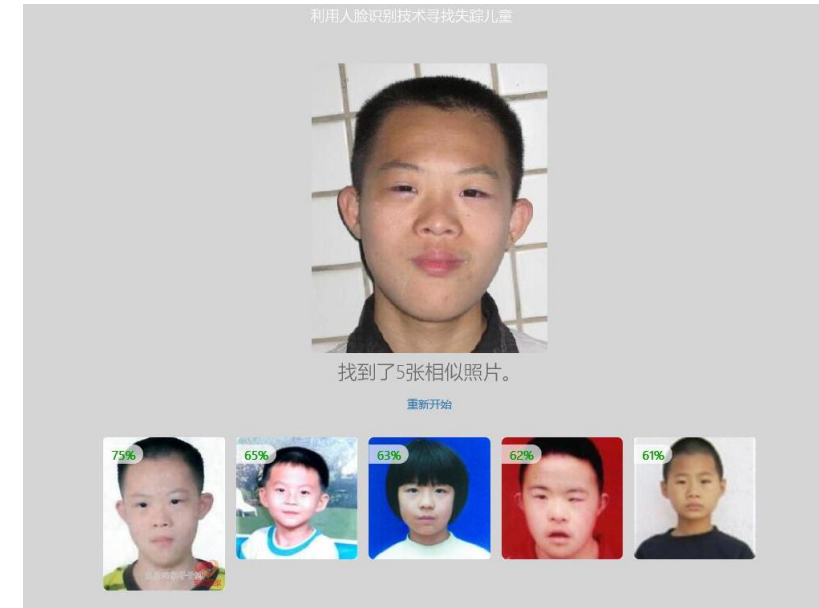
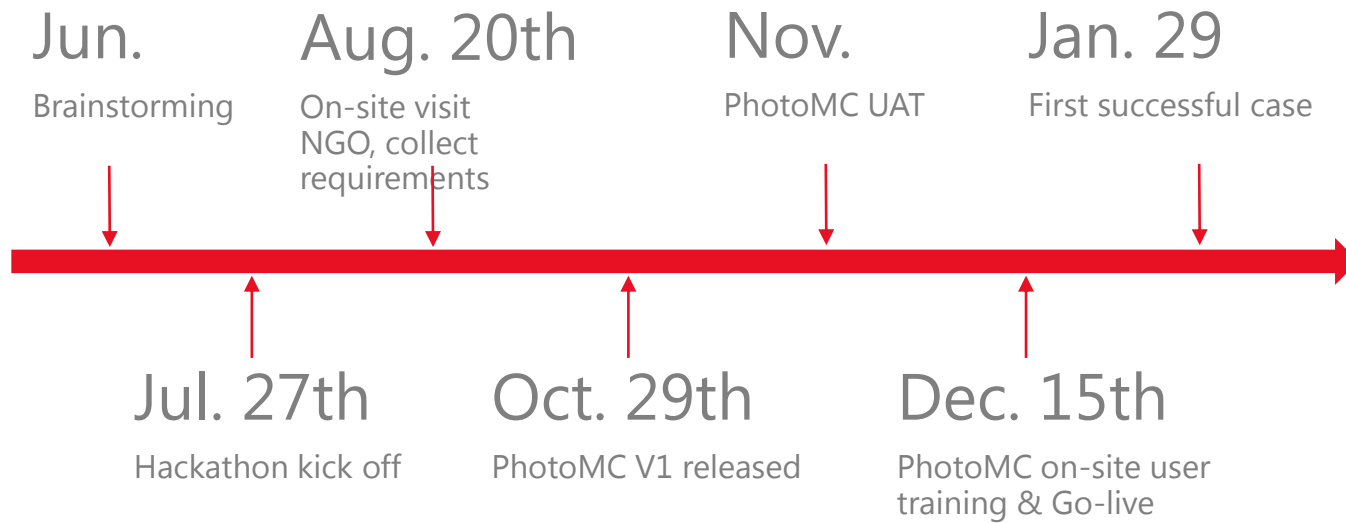
■ Windows ■ Windows Phone ■ Android ■ iOS

## Technologies



■ Cognitive Service – Face API ■ Microsoft Azure  
■ SQL Azure ■ ASP.NET MVC

# Project Timeline





# Successful Case





全国救助寻亲网

 首页

 我要寻人

 最新发布

 动态信息

 关于网站


首页 &gt; 我要寻人 &gt; 详情



寻亲公告	
姓名	哑巴
性别	男
年龄 (目测)	16岁
身高	0.0cm
特征	体态：正单   头发：直发   发色：黑
发现时衣着特征	
是否采集DNA	否
发现日期	
发现地点	
联系方式	02034876061
救助单位	广州市番禺区救助站
发布日期	Jan 22, 2016
备注信息	站内编号： <a href="#">1206106</a> ；


The missing children was born in 1998 with intellectual disability. He is unable to speak, and was missing in Guangdong in 2012. Now, he stayed in Guangdong Fanyu relief stations. His picture and info was posted on the relief website of Ministry of Civil Affairs on Jan 22th, 2016.


利用人脸识别技术寻找失踪儿童





找到了5张相似照片。


[重新开始](#)

75%

65%

63%

62%

61%

His parents registered the child's information on the NGO Baobeihuijia's website. The volunteer found a 75% matched picture when searching the pictures in PhotoMC. The parents finally found their child after verifying the DNA.

