



**Konabos Consulting**  
**[www.Konabos.com](http://www.Konabos.com)**

**Personalize the user experience with offline data from the  
Sitecore Universal Tracker**



# Are you my friend?



a.k.a the Friend Whisperer

Sitecore MVP 2014 to 2019

<https://www.linkedin.com/in/akshaysura>

<https://twitter.com/akshaysura13>

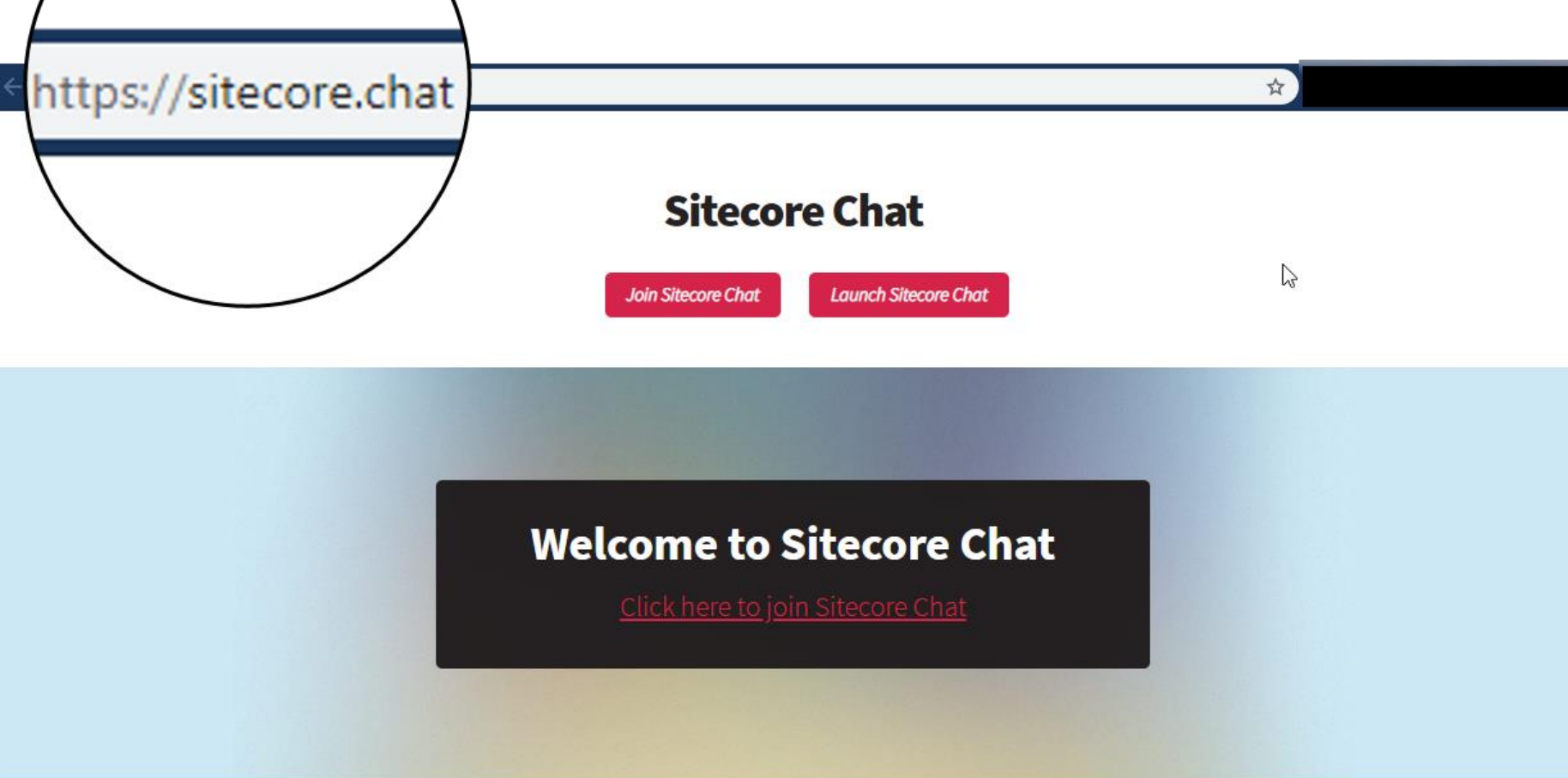


a.k.a British Kam, the real Kam

Sitecore MVP 2013 to 2019

<https://www.linkedin.com/in/kamruzjaman>

<https://twitter.com/jammykam>



2,040,690  
Messages Sent

44 Public Channels

5240 Members

1087 Active Members

## Sitecore Slack Community Guidelines & Help

The Sitecore Slack Community was created in August 2015, currently has over 4,700 users signed up and we have just surpassed over **1.7 million messages** being sent:

That's messages shared between members in public channels and direct messages, community members helping each other out when they get stuck, people sharing knowledge through blog posts and just sharing funny crazy stuff they saw in #random. Now that I think about it, 90% of those messages was probably /giphy

Keep sharing. Keep connecting. Keep helping each other out. Community is key and this is the best community out there.





1076

days in beta

Visit!

## Sitecore

Beta Q&A site for developers and end users of the Sitecore CMS and multichannel marketing software.

8.5  
questions  
per day

**Okay** - 10 questions per day on average is a healthy beta, 5 questions or fewer per day needs some work. A healthy site generates lots of good content to make sure users keep coming back.

84%  
answered

**Okay** - 90% answered is a healthy beta, 80% answered needs some work. In the beta it's especially important that when new visitors ask questions they usually get a good answer.

351  
avid users  
5,670  
total users

**Excellent** - Every site needs a solid group of core users to assist in moderating the site. We recommend:

- 150 users with 200+ rep (currently **351 users** with 200+ rep)
- 10 users with 2,000+ rep (currently **41 users** with 2,000+ rep)
- 5 users with 3,000+ rep (currently **27 users** with 3,000+ rep)

1.5  
answer ratio

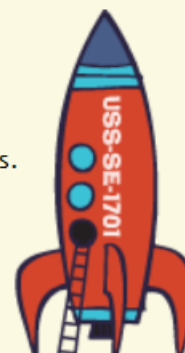
**Okay** - 2.5 answers per question is good, only 1 answer per question needs some work. On a healthy site, questions receive multiple answers and the best answer is voted to the top.

3,930  
visits/day

**Excellent** - 1,500 visits per day is good, 500 visits per day needs some work. A great site benefits people outside the community. Eventually, 90% of a site's traffic should come from search engines.



[Visit the site now!](#)



This site is in

★ **Public Beta** ★

Anyone can participate!

Sites remain in beta for at least 90 days to build up a critical mass of users, questions, and participation.

### proposed by



Mark Cassidy ♦ 1

28.3k ● 7 ● 69 ● 158



3 years ago

### edited by



Robert Cartaino ♦ ♦ 46

206k ● 60 ● 587 ● 1378



3 years ago

### public beta start

2 years ago

### private beta start

2 years ago

### commitment start

3 years ago



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**Personalize the user experience with offline data from the  
Sitecore Universal Tracker**



**What are we trying to achieve?**

# Universal Tracker

Sitecore Universal Tracker Initial Release Version 1.0  
was released along with Sitecore 9.1

# Universal Tracking Vision

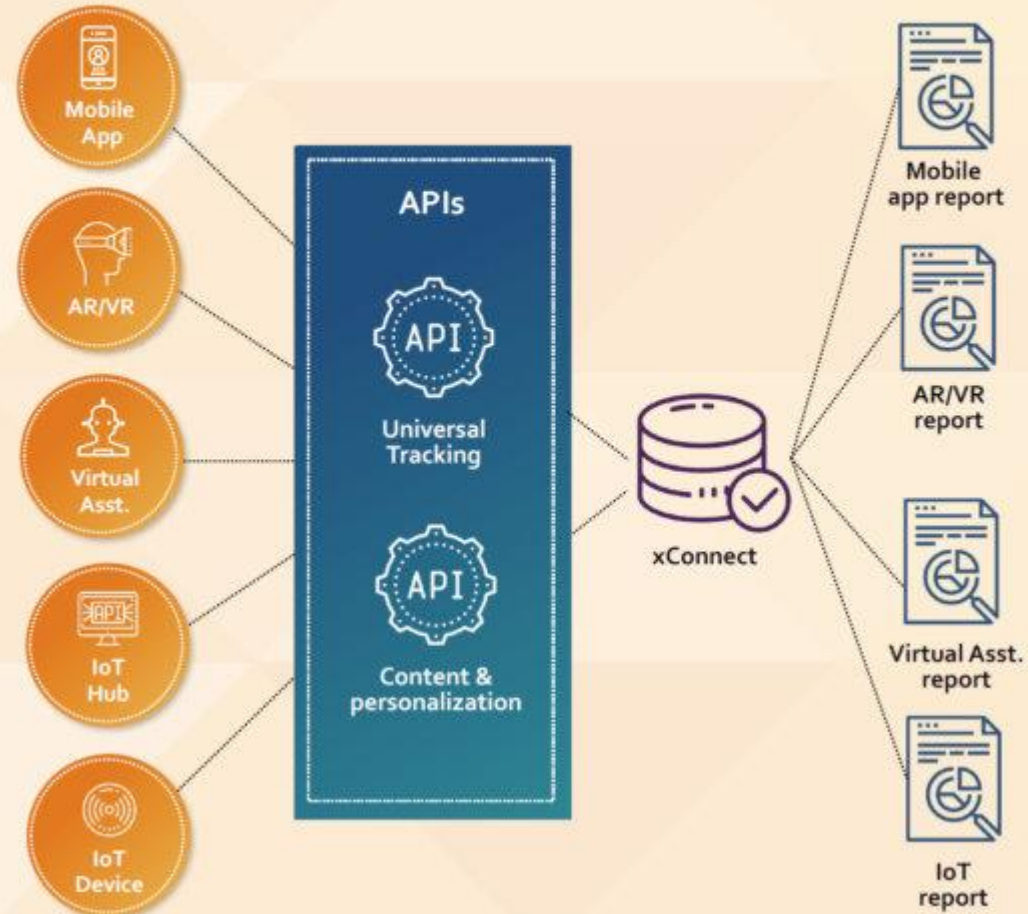
## Track any interaction on any channel

- **Headless**

Designed to be consumed by any technology, opening up xDB to data from a myriad of new sources

- **Mobile App integration through Xamarin SDK**

Updating our existing Xamarin SDK for building content based mobile applications to add the ability to track contacts behavior. Works with both iOS and Android apps



#SitecoreSYM

Sitecore Universal Tracker is an API first, a micro-service-based tracking service to track actions from mobile apps, IoT, AR, VR and other emerging channels.



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# Isn't that xConnect?

#SitecoreMVPSummit

Sharing allowed



- xConnect only accepts immutable history
- xConnect is designed for trusted service communication
  - Authentication only, no authorization

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9

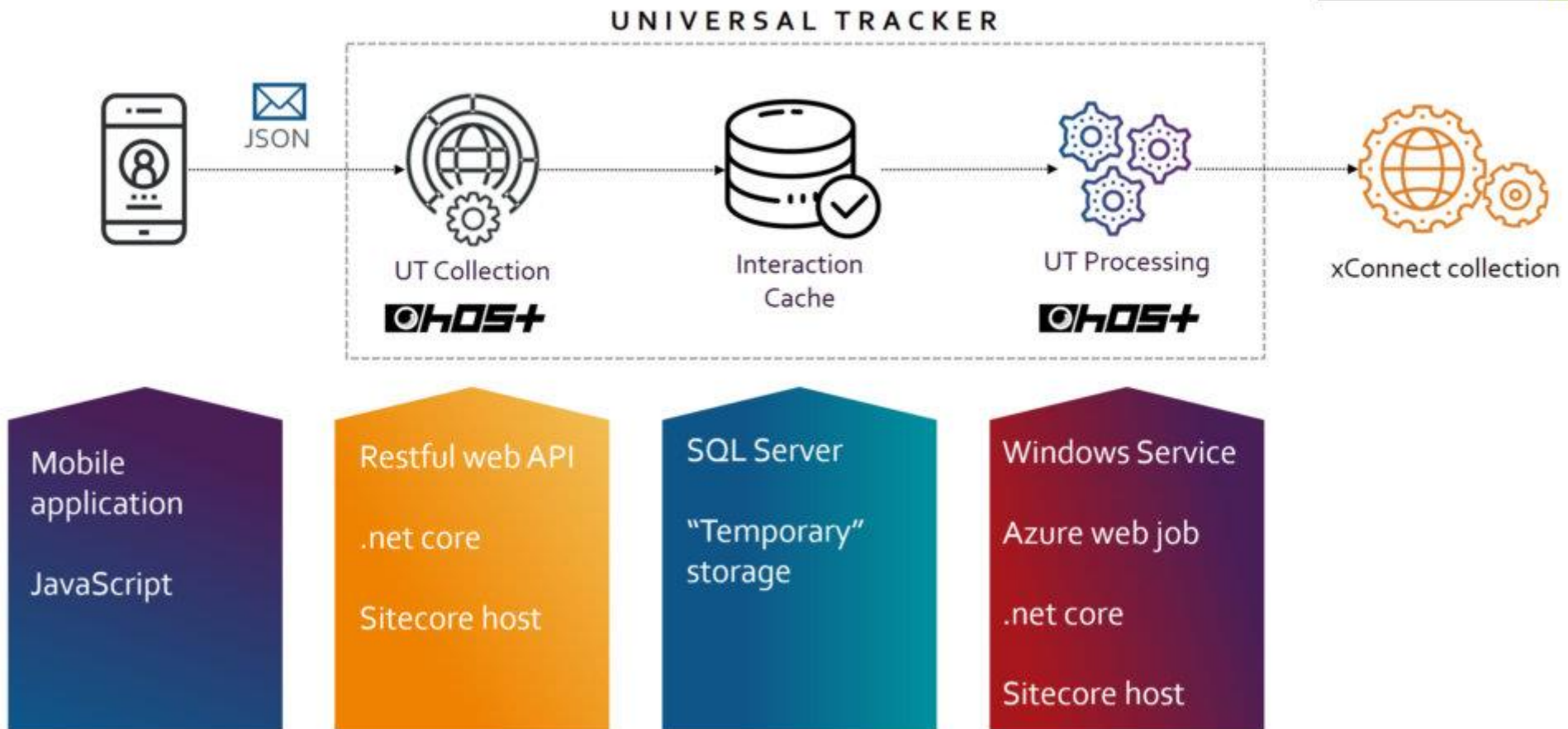
# How is Universal Tracker different than xConnect?

- xConnect is storing interactions that already happened.
- Universal Tracker is storing interactions live, each interaction can have multiple events.
- When the Universal Tracker session closes either by choice or by timeout, the information is then processed and stored in an xConnect collection.

# Universal Tracker Architecture

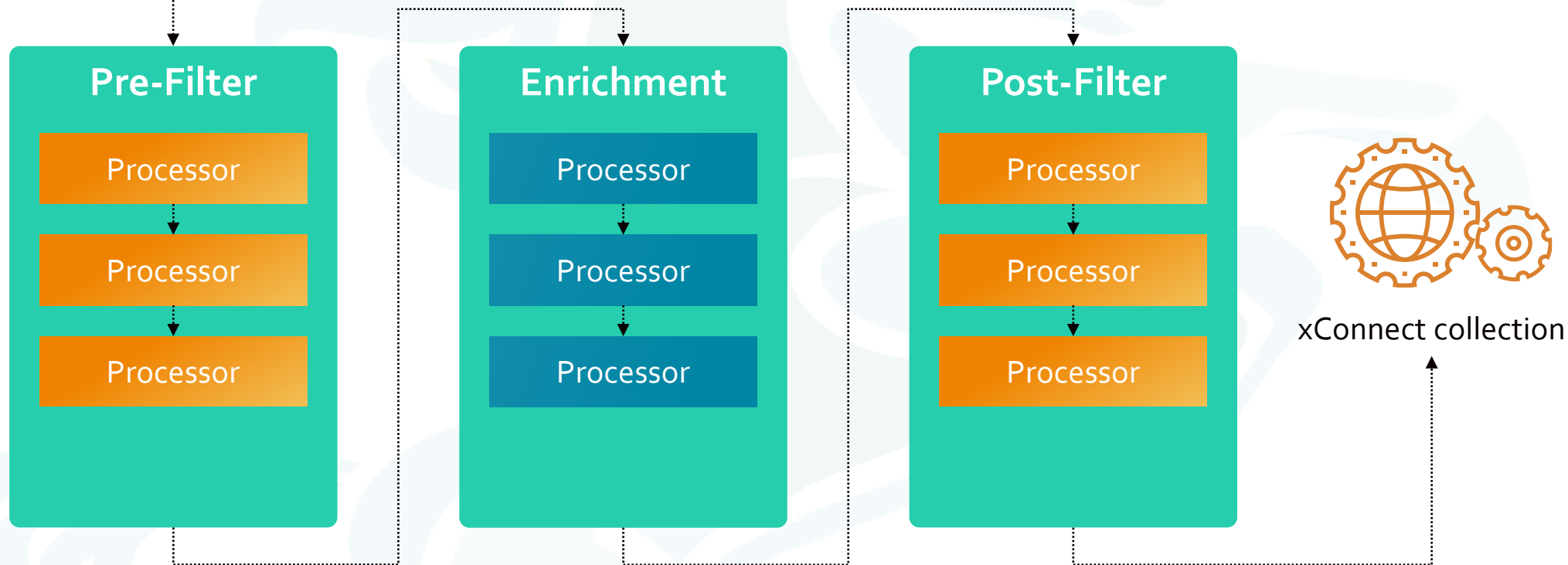
#SitecoreMVPSummit

Sharing allowed



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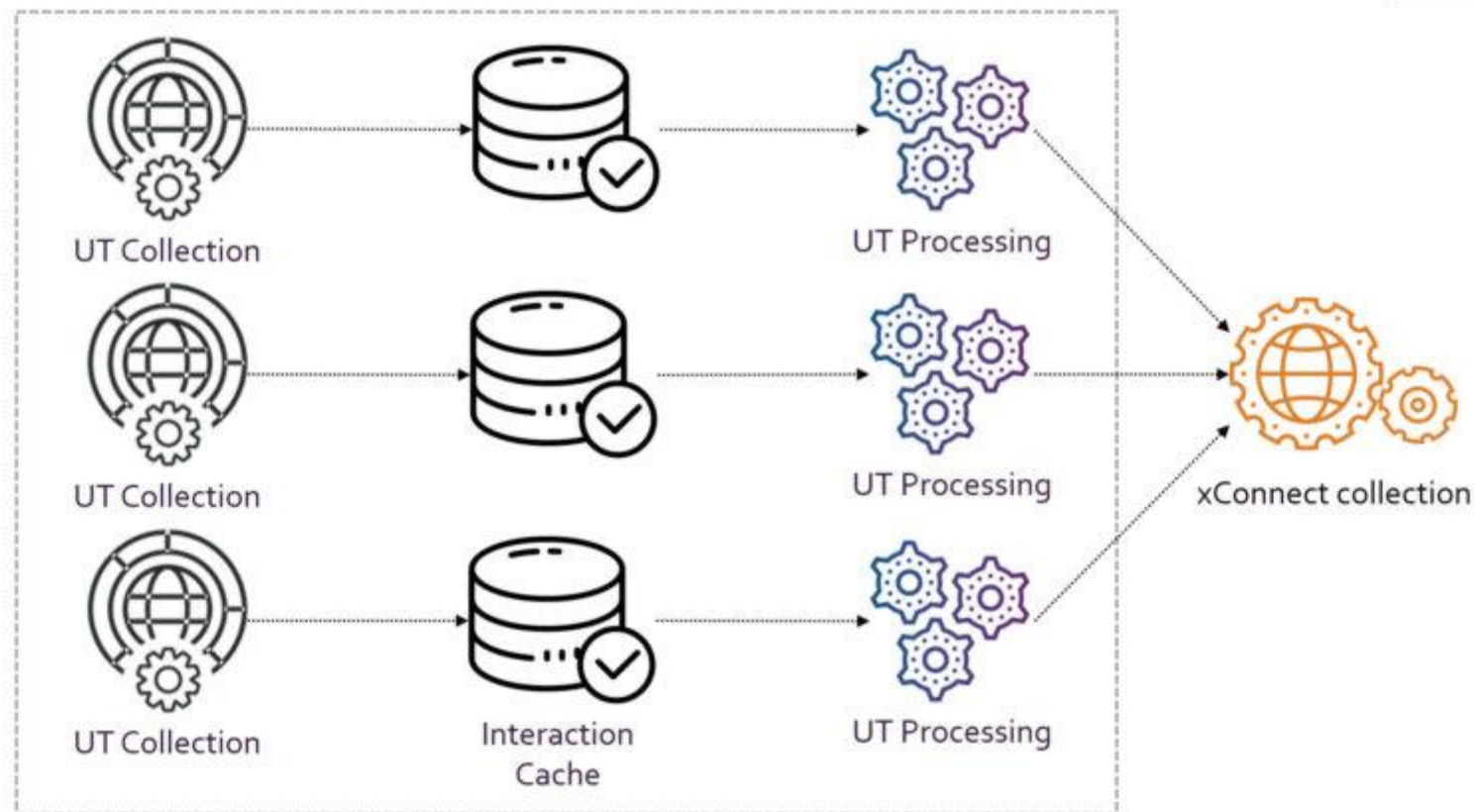
10



# Full Scaled / Multiple UT Deployments

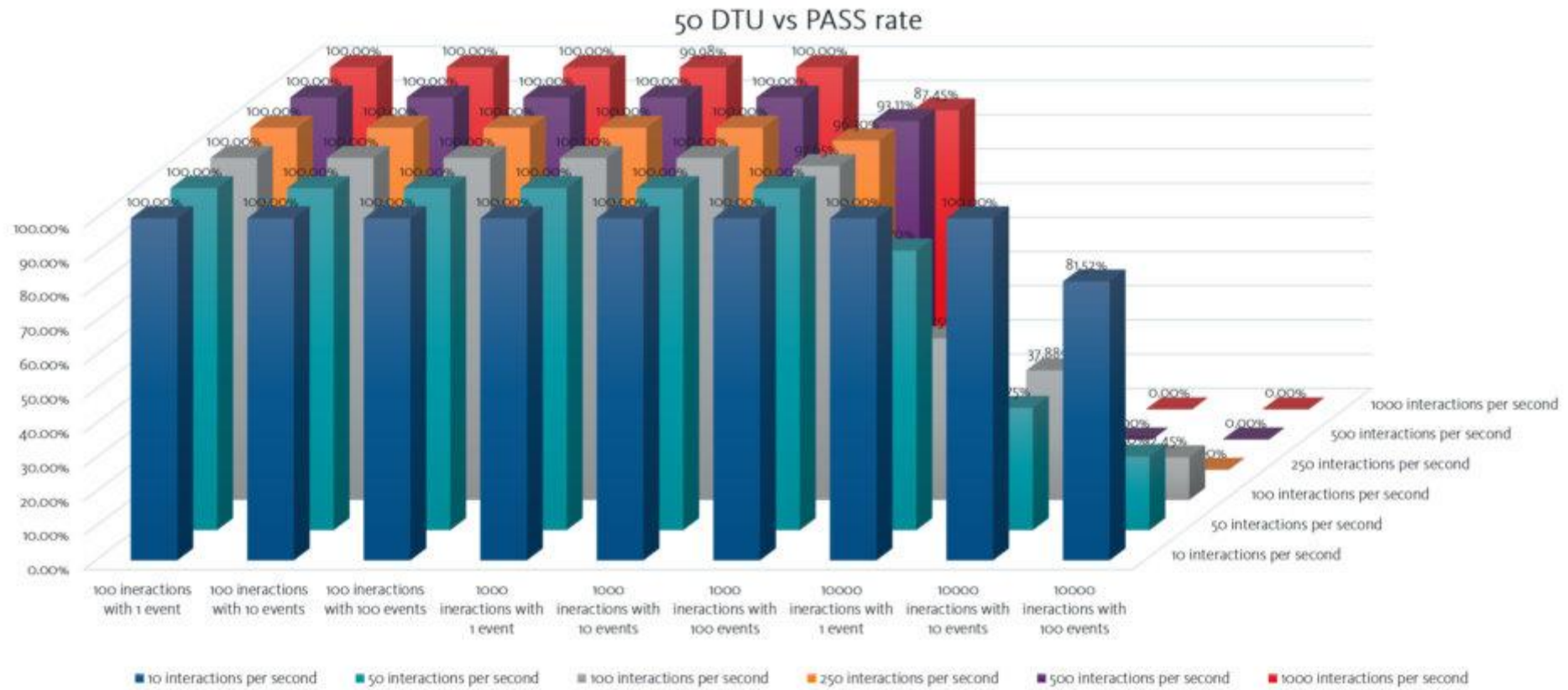
#SitecoreMVPSummit

Sharing allowed



# Performance: 50 DTU

#SitecoreMVPSummit



# Interactions

Interaction – 1

Event 1

Event 2

Event 3

Event 4

Interaction – 2

Event 1

Event 2

# Start Interaction

- HTTP PUT /interaction

```
{  
  "ChannelId": "27b4e611-a73d-4a95-b20a-811d295bdf65",  
  "Initiator": "contact",  
  "UserAgent": "Mozilla/5.0 (Windows NT 10.0; Win64; x64; rv:62.0) Gecko/20100101 Firefox/62.0",  
  "Contact": {  
    "Source": "Alias",  
    "Identifier": "1220c273-dd07-4403-b304-3aaaf65ff65a"  
  },  
  "Events": [  
    {  
      "DefinitionId": "FDCC64A1-30BD-4D86-AA05-803579ED3C35",  
      "Timestamp": "2018-10-03T19:55:41.593Z"  
    }  
  ]  
}
```

- Returns Tracking Interaction ID (session token)

# Send events

## ■ HTTP PUT /event

```
[
  {
    "type": "goal",
    "DefinitionId": "fffb4e611-a73d-4a95-b20a-811d295bdfbf",
    "Timestamp": "2019-04-05T13:45:13.337Z",
    "TrackingInteractionId": "66b0741a-5dd7-4dca-96f9-58ba3cf3e396"
  },
  {
    "type": "pageview",
    "Url": "/why/cant/you/be/my/friend",
    "Timestamp": "2019-03-29T23:00:00.000Z",
    "TrackingInteractionId": "66b0741a-5dd7-4dca-96f9-58ba3cf3e396",
    ...
  }
]
```

Type key maps to full .net type

Key maps to equivalent .net property

# Send events

## ■ HTTP PUT /event

```
[  
  {  
    "type": "goal",  
    "DefinitionId": "fffb4e611-a73d-4a95-b20a-811d295bdfbf",  
    "Timestamp": "2019-04-05T13:45:13.337Z",  
    "TrackingInteractionId": "66b0741a-5dd7-4dca-96f9-58ba3cf3e396"  
  },  
]
```

Type key maps to full .net type

```
<?xml version="1.0" encoding="utf-8" ?>  
<Settings>  
  <Sitecore.Tracking>  
    <!-- Maps simple keys onto CLR types -->  
    <TypeMappings>  
      <event>Sitecore.XConnect.Event, Sitecore.XConnect</event>  
      <goal>Sitecore.XConnect.Goal, Sitecore.XConnect</goal>  
      <outcome>Sitecore.XConnect.Outcome, Sitecore.XConnect</outcome>  
      <pageview>Sitecore.XConnect.Collection.Model.PageViewEvent, Sitecore.XConnect.Collection.Model</pageview>  
      <campaign>Sitecore.XConnect.Collection.Model.CampaignEvent, Sitecore.XConnect.Collection.Model</campaign>  
      <download>Sitecore.XConnect.Collection.Model.DownloadEvent, Sitecore.XConnect.Collection.Model</download>  
      <search>Sitecore.XConnect.Collection.Model.SearchEvent, Sitecore.XConnect.Collection.Model</search>  
    </TypeMappings>  
  </Sitecore.Tracking>  
</Settings>
```

# End Interaction

- HTTP POST /interaction/complete

"66b0741a-5dd7-4dca-96f9-58ba3cf3e396"

Tracking Interaction ID

Interactions can be closed by either:

- Timeout: (Processing server closes interactions)
  - Timeout periods defined per channel
- Manually

# Submit to REST API

The screenshot displays the Postman application window. The top bar includes the Postman logo, a menu (File, Edit, View, Help), and buttons for 'New', 'Import', 'Runner', and 'My Workspace'. The left sidebar shows a 'Collections' tab with a 'UT Demo' collection containing 3 requests. The main panel is set to 'PUT' method with the URL 'PUT PUT events' and a path '{{baseuri}}/event'. The 'Body' tab is selected, showing a JSON array of two objects. The status bar at the bottom indicates 'Status: 201 Created', 'Time: 195 ms', and 'Size: 150 B'.

PUT PUT events

PUT

{{baseuri}}/event

Send Save

Params Authorization Headers (9) Body Pre-request Script Tests Cookies Code Comments (0)

none form-data x-www-form-urlencoded raw binary JSON (application/json) Beautify

```
1 [
2   {
3     "type": "goal",
4     "DefinitionId": "C1FC71D8-86E8-449C-AABF-B7C2383BFA39",
5     "Timestamp": "2019-04-02T12:00:00Z",
6     "TrackingInteractionId": "{{trackinginteractionid}}"
7   },
8   {
9     "type": "goal",
10    "DefinitionId": "28A7C944-B8B6-45AD-A635-6F72E8F81F69",
11    "Timestamp": "2019-04-02T12:00:00Z",
12    "TrackingInteractionId": "{{trackinginteractionid}}"
13  }
14 ]
```

Body Cookies Headers (4) Test Results Status: 201 Created Time: 195 ms Size: 150 B Save Download

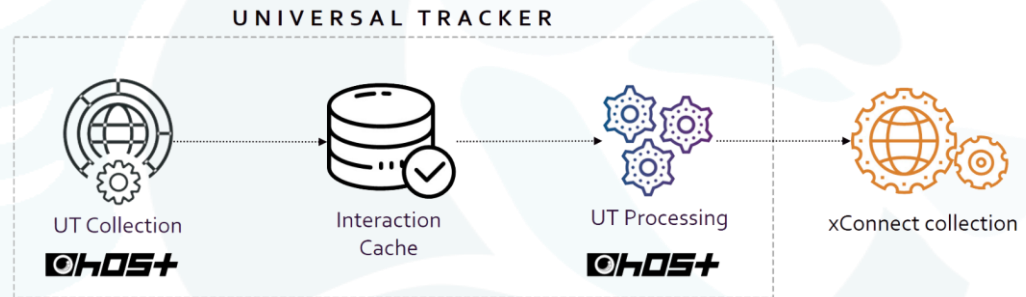
Pretty Raw Preview Auto



# Universal Tracker Client SDK

- Portable Class Library
- .Net applications and Xamarin
- Open Source
- Pre-baked into Sitecore Mobile SDK
- nuget.org => Sitecore.UniversalTracker.MobileSDK
- doc.sitecore.com => Universal Tracker SDK

HTML Site / Postman



HOME

NAVIGATE

REVIEW

ANALYZE

PUBLISH

VERSIONS

CONFIGURE

PRESENTATION

SECURITY

VIEW

MY TOOLBAR

Save

Write

Spelling

Proofing

Markup

Proofing

Validation

Proofing

Subscribe

My items

Locks

Click Edit to lock and edit this item.

Edit

History

Deploy

Reminder

Schedule

Archive

Schedule

Search

Content

Marketing Control Panel

Taxonomies

Goals

Brochures Request

Click Email Link

Conference

Some Goal

Instant Demo

Login

Newsletter Signup

Register

Signed into SUGCON

Automation Plans

Campaigns

Contact Lists

Some Goal

If you publish now, the selected version will not be visible on the Web site because it is not in the final workflow step. No other version will be published.

Quick Info

Item ID: {32A2EED9-9D92-4DE9-8A64-668CDF5C5524}

Item name: Some Goal

Item path: /sitecore/system/Marketing Control Panel/Goals/Some Goal

Template: /sitecore/templates/System/Analytics/Goal - {475E9026-333F-432D-A4DC-52E03B75CB6B}

Created from: [unknown]

Item owner: sitecore\admin

## Personalize the component



Personalize the presentation of the component



## Personalize

Actions ▾



where the [Newsletter Signup](#) goal was triggered during a past or current interaction and when the number of elapsed days is [less than 100](#) and when the past number of interactions is [less than 100](#)

Edit rule

☒ Show ☐ Hide

Content:

.../Personalized NEWSLETTER SIGNUP



Reach

17%

Effect

= 0%

## Default



If none of the other conditions are true, the default condition is used.

☒ Show ☐ Hide

Content:

.../NEWSLETTER SIGNUP



Reach

83%



IIS

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## IIS CORS Module

 This is a [Microsoft Supported Download](#) | Works With: IIS 7.5, IIS 8, IIS 8.5, IIS 10[Install this extension](#)[or view additional downloads](#)

### Overview

The Microsoft IIS CORS Module is an extension that enables web sites to support the CORS (Cross-Origin Resource Sharing) protocol.

The IIS CORS Module enables support for the Cross-Origin Resource Sharing (CORS) protocol. CORS is a mechanism to let a user-agent access resources from a domain outside of the domain from which the first resource was served. CORS defines a way by using additional HTTP headers to allow request permissions to access a selected resource. In addition, some requests may even trigger a preflight request probing supported HTTP methods from the server with an HTTP OPTIONS request. The IIS CORS module helps with setting appropriate response headers and responding to preflight requests. Once installed, the IIS CORS module is configured via a site or application web.config and has its own cors configuration section within system.webserver.

### Related Learning

#### Resources

[Configuration Reference](#)

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# Sitecore.Tracking.Collection.Service

```
<?xml version="1.0" encoding="utf-8"?>
<configuration>
  <system.webServer>
    <handlers>
      <remove name="aspNetCore" />
      <add name="aspNetCore" path="*" verb="*" modules="AspNetCoreModule" resourceType="Unspecified" />
    </handlers>
    <aspNetCore processPath="dotnet" arguments=".\Sitecore.Tracking.Web.dll" stdoutLogEnabled="false" stdoutLogFile=".\logs\stdout" />
    <httpProtocol>
      <customHeaders>
        <!--Removing the unwanted headers for security-->
        <remove name="X-Powered-By" />
        <remove name="X-SourceFiles" />
        <remove name="X-AspNet-Version" />
        <remove name="X-AspNetMvc-Version" />
        <add name="Access-Control-Allow-Headers" value="Content-Type"/>
      </customHeaders>
    </httpProtocol>
    <modules>
      <remove name="WebDAVModule" />
    </modules>

    <cors enabled="true" failUnlistedOrigins="false">
      <add origin="*">
        <allowMethods>
          <add method="GET" />
          <add method="POST" />
          <add method="PUT" />
          <add method="OPTIONS" />
        </allowMethods>
      </add>
    </cors>
  </system.webServer>
</configuration>
<!--ProjectGuid: 05CB8448-0D16-4392-B883-276FB99D9D52-->
```



SERVICES

WHO WE ARE

BLOG

CAREERS

CONTACT US

+1-866-577-6310

## Submit Interaction for Tracking

IDENTIFIER \*

email

☐ SIGNED INTO SUGCON

☐ REGISTER

☐ NEWSLETTER SIGNUP

☐ INSTANT DEMO

☐ BROCHURE REQUEST

START INTERACTION



```
<div class="container clearfix">
  <div class="postcontent nobottommargin">
    <h1>Submit Interaction for Tracking</h1>
    <div class="contact-widget">

      <form id="start-tracking" name="start-tracking" action="/interaction">
        <div class="clear"></div>
        <div class="col_half">
          <label for="trackingIdentifier">Identifier <small>*</small></label>
          <input type="email" id="trackingIdentifier" name="trackingIdentifier" placeholder="email" value="" class="required email sm-form-control" required />
        </div>
        <div class="clear"></div>
        <div class="col_full">
          <label class="rightmargin-sm"><input type="checkbox" name="sugcon" value="5C2E5B19-72E4-4FF1-943A-6EF5ED1D9AC2"> Signed into SUGCON</label>
          <label class="rightmargin-sm"><input type="checkbox" name="register" value="8FFB183B-DA1A-4C74-8F3A-9729E9FCFF6A"> Register</label>
          <label class="rightmargin-sm"><input type="checkbox" name="newsletter" value="1779CC42-EF7A-4C58-BF19-FA85D30755C9"> Newsletter Signup</label>
          <label class="rightmargin-sm"><input type="checkbox" name="demo" value="28A7C944-B8B6-45AD-A635-6F72E8F81F69"> Instant Demo</label>
          <label class="rightmargin-sm"><input type="checkbox" name="brochure" value="968897F1-328A-489D-88E8-BE78F4370958"> Brochure Request</label>
        </div>
        <div class="clear"></div>
        <div class="col_full">
          <button class="button button-3d nomargin" type="submit" id="start-submit" name="start-submit" value="submit">Start Interaction</button>
        </div>
      </form>

      <form id="event-tracking" name="event-tracking" action="/event" class="hidden">
        <div class="clear"></div>
        <div class="col_full nobottommargin">
          <div class="interaction-id hidden-X">
            <h3>Interaction id: <span id="interactionIdLabel">{1234567890}</span><h3>
          </div>
        </div>
        <div class="clear"></div>
        <div class="col_full">
          <label class="rightmargin-sm"><input type="checkbox" name="sugcon" value="5C2E5B19-72E4-4FF1-943A-6EF5ED1D9AC2"> Signed into SUGCON</label>
          <label class="rightmargin-sm"><input type="checkbox" name="register" value="8FFB183B-DA1A-4C74-8F3A-9729E9FCFF6A"> Register</label>
          <label class="rightmargin-sm"><input type="checkbox" name="newsletter" value="1779CC42-EF7A-4C58-BF19-FA85D30755C9"> Newsletter Signup</label>
          <label class="rightmargin-sm"><input type="checkbox" name="demo" value="28A7C944-B8B6-45AD-A635-6F72E8F81F69"> Instant Demo</label>
          <label class="rightmargin-sm"><input type="checkbox" name="brochure" value="968897F1-328A-489D-88E8-BE78F4370958"> Brochure Request</label>
        </div>
        <div class="clear"></div>
        <div class="col_full">
          <button class="button button-3d nomargin" type="submit" id="event-submit" name="event-submit" value="submit">Submit Events</button>
          <div class="event-interction-result hidden"><h4>Event data sent to tracker.</h4></div>
        </div>
      </form>

      <form id="end-tracking" name="end-tracking" action="/interaction/complete" class="hidden">
        <div class="clear"></div>
        <div class="col_half nobottommargin">
```

SQLQuery1.sql - localhost.myUT (DESKTOP-5GEUO9M\suraxp13 (65))\* - Microsoft SQL Server Management Studio

File Edit View Query Project Debug Tools Window Help

myUT

Execute Debug

Object Explorer

localhost (SQL Server 13.0.5026.0 - DESKTOP-5GEUO9M\suraxp13 (66))\*

SQLQuery1.sql - lo...09M\suraxp13 (65))\*

SQLQuery2.sql - lo...09M\suraxp13 (66))\*

Connect

localhost (SQL Server 13.0.5026.0 - DESKTOP-5GEUO9M\suraxp13 (66))\*

Databases

System Databases

Database Snapshots

KonabosUT

myUT

Database Diagrams

Tables

System Tables

FileTables

External Tables

ut\_store.Interactions

ut\_store.TrackingEvents

Views

External Resources

Synonyms

Programmability

Service Broker

Storage

Security

sc827\_core

sc827\_master

sc827\_reporting

sc827\_web

sc910\_Core

sc910\_EXM.Master

sc910\_ExperienceForms

sc910\_MarketingAutomation

sc910\_Master

sc910\_Messaging

sc910\_Processing.Pools

sc910\_Processing.Tasks

sc910\_ProcessingEngineStorage

sc910\_ProcessingEngineTasks

100 %

Results

Messages

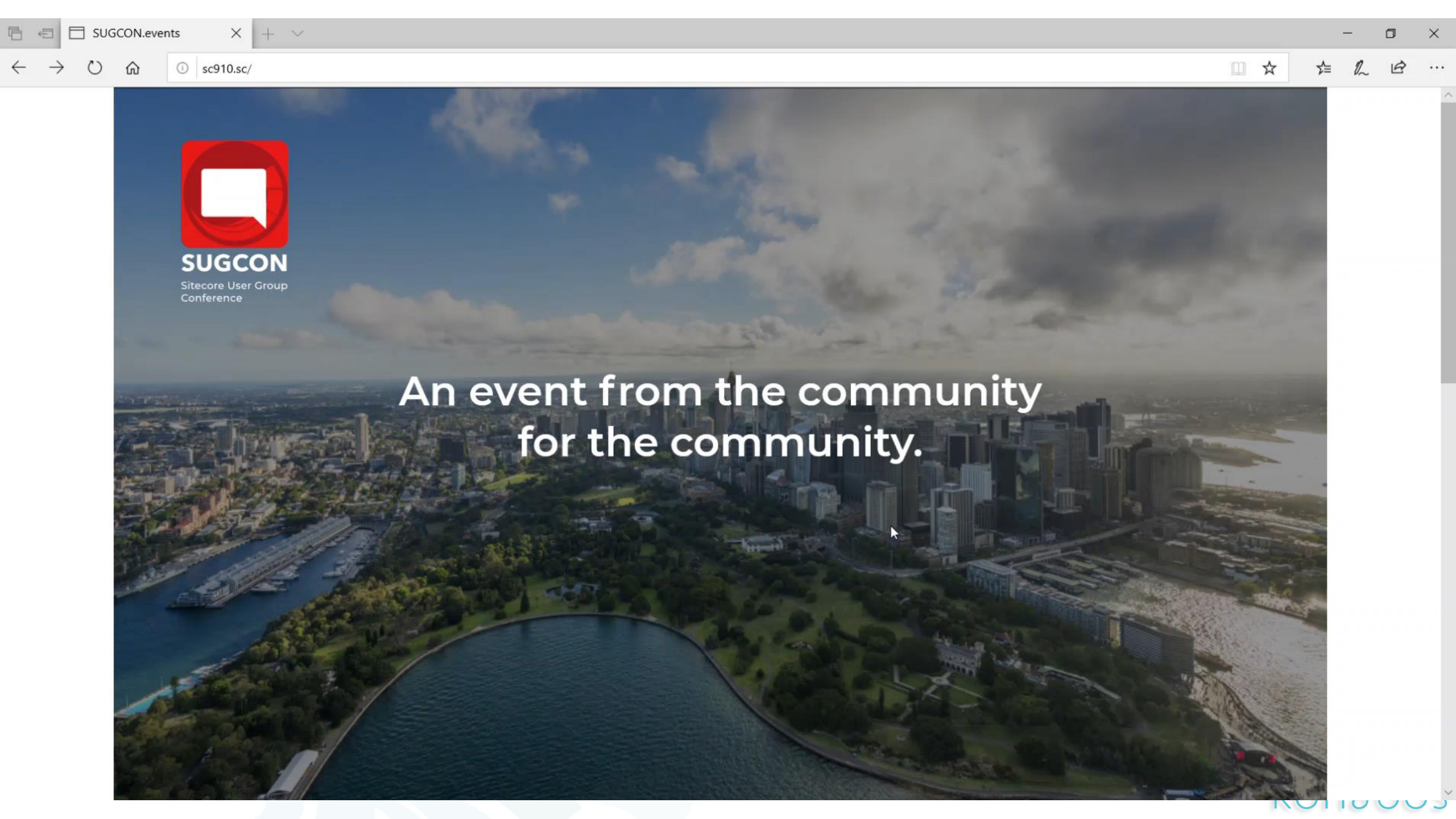
	Id	TrackingInteractionId	ChannelId	Created	Scheduled	State	Data	(No column name)
1	201	20D1595A-7AE8-4A81-A101-C33207419FEB	F3F8307A-78D3-4899-97AA-543410A93ECD	2019-09-25 10:53:02	2019-09-25 10:53:11	10	0x7B222474797065223A2253697465636F726552E58436F6E...	("Type": "Sitecore.XC...

Query executed successfully.

localhost (13.0 SP2) | DESKTOP-5GEUO9M\suraxp... | myUT | 00:00:00 | 1 rows

Ln 8 | Col 14 | Ch 14 | INS





**SUGCON**  
Sitecore User Group  
Conference

An event from the community  
for the community.

4:00	08:00	12:00	16:00	20:00	00:00	04:00	08:00	12:00	16:00	20:00	00:00	04:00	08:00	12:00	16:00	20:00	00:00	04:00	08:00	12:00	16:00	20:00	00:00	04:00	08:00	12:00	16:00	20:00	00:00	04:00	08:00	12:00	16:00	20:00					
Wednesday 25 September 2019					Thursday 26 September 2019					Friday 27 September 2019					Saturday 28 September 2019					Sunday 29 September 2019					Monday 30 September 2019					Tuesday 1 October 2019					Wednes				

## DETAILS

## Latest events

Visit  
24.09.2019 21:47:49 (7 hour 2 min)

Goal  
Register  
24.09.2019 21:47:49 (7 hour 2 min)

Goal  
Instant Demo  
24.09.2019 20:53:10 (7 hour 57 min)

Goal  
Brochures Request  
24.09.2019 20:53:10 (7 hour 57 min)

Goal  
Newsletter Signup  
24.09.2019 20:52:56 (7 hour 57 min)

## DETAILS

[why@canyoubemyfriend.c...](#)

```

using (XConnectClient client = Sitecore.XConnect.Client.Configuration.SitecoreXConnectClientConfiguration.GetClient())
{
    try
    {
        var reference = new IdentifiedContactReference("email", registrationInfo.Email);
        Contact contact = client.Get<Contact>(reference, new ContactExpandOptions(EmailAddressList.DefaultFacetKey)
        {
            Interactions = new RelatedInteractionsExpandOptions()
            {
                StartDateTime = DateTime.MinValue,
                EndDateTime = DateTime.MaxValue,
                Limit = int.MaxValue
            }
        });

        if (contact != null && contact.GetFacet<EmailAddressList>(EmailAddressList.DefaultFacetKey) == null)
        {
            EmailAddressList emails = new EmailAddressList(new EmailAddress(registrationInfo.Email, true), "Work");
            client.SetFacet<EmailAddressList>(contact, EmailAddressList.DefaultFacetKey, emails);
            client.Submit();
            if (!contact.Id.Equals(Sitecore.Analytics.Tracker.Current.Session.Contact.ContactId))
            {
                Tracker.Current.Session.IdentifyAs("Email", registrationInfo.Email);
            }
        }
    }
}

```

# Summary

- Push data from anywhere
- REST API
- Flexible Scaling
- Initial Release
- No Personalisation via API

# Questions?



**@akshaysura**

**@jammykam**

sitecorechat.slack.com



**@konabosinc**

twitter



**@everyone**

sitecore.stackexchange.com



**konabos**

[www.konabos.com/blog](http://www.konabos.com/blog)



**konabos**