# SMARTCLOUD
## CONNECT *for Salesforce®*
### Powered by INVISIBLE

# SmartCloud Connect Architecture and Functionality Overview

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# INTRODUCTION

## Overview of SmartCloud Connect

SmartCloud Connect seamlessly brings Salesforce into your inbox, making it easy for you to share data between both systems without having to switch back and forth.

Here are the key features that SmartCloud Connect provides:

- **Get Contextual Salesforce Data.** SmartCloud Connect instantly brings relevant and up-to-date Salesforce data for any email or activity. This data is displayed inline next to your email message or activity and includes contacts, associated accounts, opportunities, related events, and much more.

- **Synchronize Contacts, Events, and Tasks.** Automatically synchronize your contacts, events, and tasks between Salesforce and your email client. Synchronization requires no Add-In/Extension installation and works on any platform and for any email client that supports Microsoft Exchange Server.

- **Share Emails with Salesforce.** Save your emails to Salesforce by assigning them to the "Salesforce" category, moving to the "Salesforce Emails" folder, or associating them with the related record via the Outlook Add-In/-Chrome Extension. Your emails will appear in Salesforce as completed tasks with attachments.

- **Create or Update Salesforce Records Right from Your Inbox.** Create or update a Salesforce record of any type without leaving your mail application. For your convenience, SmartCloud Connect analyzes the contents of the email and pre-fills relevant fields when a new record is created.

- **Find Salesforce Records Quickly.** Search through all Salesforce records or records of a certain type right from your email to find relevant bits of information.

- **Keep an Eye on Customer Engagement.** With the "Magic Pixel" email tracking feature, see who, where and when opens your emails.

- **Access Chatter Directly from Your Email or Event.** Communicate with your colleagues without leaving your inbox by making Chatter posts, sharing emails and attachments, and saving other information to any Chatter feed.

- **Use It on Your Smartphone.** With two-way synchronization between Salesforce and Exchange, your mobile device is always up to date with contacts, meetings, and tasks. Modify any contact and see it updated in Salesforce, or share an important email from your mobile in a few taps.

- **Tune It the Way You Want.** SmartCloud Connect is easily customized to fit your needs - choose which Salesforce objects and object fields you want to view and edit, or which criteria to use when searching for relevant records in Salesforce. Both standard and custom Salesforce objects are supported. You can also pick a customization from your colleague to get up and running quickly, or you can share your own customization with other users in your organization.

# PRODUCT DESCRIPTION

## Overview of SmartCloud Connect

- SmartCloud Connect (SCC onwards) is cloud service, hosted in Windows Azure which provides:
    a. Server-side synchronization between Salesforce and Microsoft Exchange (Exchange 2010-2016 and Office 365 are supported)
        - Bi-directional synchronization of Salesforce Contacts, Tasks, Events and one-way email sharing from Microsoft Exchange to Salesforce.
    b. Microsoft Outlook Add-In (formerly MailApp) for Exchange 2013 and above and Office 365 for direct access of Salesforce from Outlook.
    c. Desktop Add-In for Microsoft Outlook 2010 (and above) which can run SSC Add-In on older versions of Outlook.

- SCC comes with free and paid versions varying in level of service, synchronization interval and number of records managed;

- Additional information, pricing and install instructions are available at https://smartcloudconnect.io;

- For background synchronization SCC stores user credentials for Salesforce and Exchange in a secure location. Whenever possible SCC relies on OAUTH refresh tokens, however also provides means for authenticating with login and password;

- To allow direct reach-through to Salesforce from Outlook Add-to, a Salesforce refresh token is used/stored in the backend as well.

## SmartCloud Connect Functionality Summary

Once installed for a user, SmartCloud Connect provides following functionality:

- Background synchronization of Salesforce data with Exchange mailbox.
    a. Contacts are synced bi-directionally:
        - From Salesforce side, only Contacts which match user filter or View are part of synchronization scope;
        - On Exchange side, Contacts are synced with "Business Contacts" subfolder folder under "Contacts" folder;
        - Setting "Salesforce" category on a contact shares it with Salesforce.
    b. Tasks are synced bi-directionally:
        - From Salesforce side, only Tasks which are assigned to current user, and either is incomplete or are within sliding window of (2 weeks in past and onwards) are synced;
        - On Exchange side, Tasks are synced with "Business Tasks" subfolder under "Tasks" folder;
        - Setting "Salesforce" category on a task shares it with Salesforce.
    c. Events are synced bi-directionally:
        - From Salesforce side, only Events which are assigned to current user, and within sliding window of (2 weeks in past, 4 weeks in future) are synced;

- On Exchange side, Events are synced into standard "Calendar" folder;
- Setting "Salesforce" category on a meeting shares it with Salesforce.

d. Emails are shared from Exchange to Salesforce:
- To share an email user must either assign a "Salesforce" category to the email or move it to "Business Emails" folder;
- During sharing, email recipients will be recognized in Salesforce and linked to the activity. If no recipients are known, lead(s) will be created from email addresses.

e. User self-service dashboard to allow service configuration, monitoring performance and updating user credentials.

- Online access to Salesforce in context of email or event with Outlook Add-In.

a. Direct access to Salesforce by:
- Matching all recipients/attendees against Salesforce;
- Allowing to drill down to related records;
- Searching Salesforce for given criteria.

b. Create new records;

c. Edit existing records;

d. Instantly share Email and Meeting as Task or Event to Salesforce;

e. Upload attachments to Salesforce;

f. Full support of Salesforce customization;

g. Flexible configuration to define subset of fields and records shown to user;

h. Share email being composed of sending.

- Productivity features.

a. Let sender insert a tracking code and then see when and where recipient has opened email;

b. Automatically recognize addresses/phone numbers when creating new contact or lead.

# Supported Email Services, Browsers, and Operational Systems

- SmartCloud Connect is compatible with wide range of email servers

Please find the list of compatible email clients below. Note, it's recommended to update your email client to the latest version for the best experience with SmartCloud Connect.

## Microsoft Office 365 (with Exchange Online plan) and Microsoft Exchange 2013, 2016

| Email Client | Supports Sync | Supports Sidebar Add-In |
|---|---|---|
| Microsoft Outlook 2010, 2013, 2016 for Windows | Yes | Yes+Pin[1] |
| Microsoft Outlook 2016 for Mac | Yes | Yes |
| Microsoft Outlook Web Access | Yes | Yes |
| Microsoft OWA Native App for  iOS or Android | Yes | Yes |
| Outlook for iOS | Yes | Yes |
| Any other desktop or mobile client that could be connected to Microsoft Exchange and supports folders and/or categories | Yes | No |

## Microsoft Exchange 2010 (for desktop add-in only)

| Email Client | Supports Sync | Supports Sidebar Add-In |
|---|---|---|
| Microsoft Outlook 2010, 2013, 2016 for Windows | Yes | Yes |
| Any other desktop or mobile client that could be connected to Microsoft Exchange and supports folders and/or categories | Yes | No |

[1] Yes+Pin - Sidebar Add-In could be 'pinned', so you do not need to reopen it each time browsing different emails or meetings in your email client.

# Gmail

| Email Client | Supports Sync | Supports Sidebar Add-In |
|---|---|---|
| Gmail Web Interface | No | Yes (Chrome Extension) |
| Microsoft Outlook 2010, 2013, 2016 for Windows | Yes[1] | Yes+Pin[2] |
| Microsoft Outlook 2016 for Mac | Yes[2] | Yes[2] |
| Microsoft Outlook Web Access | Yes[2] | Yes[2] |
| Microsoft OWA Native App for iOS or Android | Yes[2] | Yes[2] |
| Outlook for iOS | Yes[2] | Yes[2] |
| Any other desktop or mobile client that could be connected to Microsoft Exchange and supports folders and/or categories | Yes[2] | No |

# Outlook.com

| Email Client | Supports Sync | Supports Sidebar Add-In |
|---|---|---|
| Microsoft Outlook 2010, 2013, 2016 for Windows | Yes | Yes+Pin[3] |
| Microsoft Outlook 2016 for Mac | Yes | Yes |
| Microsoft Outlook Web Access | Yes | Yes |
| Microsoft OWA Native App for iOS or Android | Yes | Yes |
| Outlook for iOS | Yes | Yes |
| Any other desktop or mobile client that could be connected to Microsoft Exchange and supports folders and/or categories | Yes | No |

[1] You need to connect your Gmail account with any Outlook.com/Office 365 account to use this functionality. Don't worry - your email address won't be changed to @outlook.com, you'll still use your Gmail email address. Here are the quick steps:

- Create Outook.com/Office 365 account or use any existing one you have access to.
- Connect Gmail to this Outlook.com/Office 365 account using this instruction from Microsoft.
- Add Outlook.com/Office 365 account to email client where you want to use Add-In.Enable Add-In for Outlook.com/Office 365 account.

[2] **Yes+Pin** - Sidebar Add-In could be 'pinned', so you do not need to reopen it each time browsing different emails or meetings in your email client.

# POP or IMAP

| Email Client | Supports Sync | Supports Sidebar Add - In |
|---|---|---|
| Microsoft Outlook 2010, 2013, 2016 for Windows | Yes[1] | Yes+Pin[2] |
| Microsoft Outlook 2016 for Mac | Yes[4] | Yes [4] |
| Microsoft OWA Native App for iOS or Android | Yes[4] | Yes[4] |
| Outlook for iOS | Yes[4] | Yes[4] |
| Any other desktop or mobile client that could be connected to Microsoft Exchange and supports folders and/or categories | Yes[4] | No |

- SmartCloud Connect is compatible with a wide range of browsers

  Since SmartCloud Connect is cloud solution, it uses a browser to render its user interface. So, please check browser's compatibility and update your browser to the latest version for the best experience with SmartCloud Connect.

| Browser | Support |
|---|---|
| Chrome | Full |
| Internet Explorer 11 | Full |
| Safari (including iOS version) | Full |
| Android Mobile browser | Full |
| Internet Explorer 10 | Partial |
| Firefox | Partial |
| Opera | Partial |
| Internet Explorer 9 or lower | No |

Note: If your email client is Microsoft Outlook for Windows, please check Internet Explorer version because it renders the Sidebar Add-In in Outlook.

[1] You need to connect your POP/IMAP account with any Outlook.com/Office 365 account to use this functionality. Don't worry - your email address won't be changed to @outlook.com, you'll still use your current POP/IMAP-driven email address. Here are the quick steps:

- Create Outook.com/Office 365 account or use any existing one you have access to.
- Connect your POP/IMAP account to this Outlook.com/Office 365 account using this instruction from Microsoft.
- Add Outlook.com/Office 365 account to email client where you want to use Add-In.Enable Add-In for Outlook.com/Office 365 account.
- Enable Add-In for Outlook.com/Office 365 account.

[2] **Yes+Pin** - Sidebar Add-In could be 'pinned', so you do not need to reopen it each time browsing different emails or meetings in your email client.

## Using SmartCloud Connect on a Mobile Device

SmartCloud Connect allows you to collaborate on the go and share your contacts, emails, calendar events, and tasks with Salesforce from your smartphone. You can also edit shared contacts, tasks or calendar appointments on your smartphone, and these changes will be automatically shared with Salesforce. If a task or calendar appointment from Salesforce has a reminder, you will get a notification on your mobile phone when an activity is approaching.

To share an email, contact, calendar event or task on a mobile device, you can use the same methods as in MS Outlook or Outlook Web App. You can either:

- Move your email (contact, etc.) to the respective "Salesforce" folder
- Assign you email (contact, etc.) to the "Salesforce" category

Note: Note: Since the functionality of email clients on mobile platforms varies, some of the features that SmartCloud Connect provides may not be available in your mail application. For example, if your email client does not support categories, you will not be able to share your records using the category assignment.

Also note that the SmartCloud Connect Add-In is not supported by native mobile email applications, it is only available in the Outlook Web App or in the OWA for iOS or Android mobile application.

## Using SmartCloud Connect with iOS Mail

When using the iOS Mail application with SmartCloud Connect, you can share the following objects with Salesforce:

- Email messages
- Contacts
- Tasks

Note: As for calendar events, you can only view and edit events that were synchronized from Salesforce to your iOS Calendar. However, you cannot share with Salesforce calendar events that you create in iOS Calendar.

## Using SmartCloud Connect with Gmail for Android

When using SmartCloud Connect with the Gmail app on Android, you can share the following objects with Salesforce:

- Email messages
- Contacts

Note: As for calendar events, you can only view and edit events that were synchronized from Salesforce to your Google Calendar. However, you cannot share with Salesforce calendar events that you create in Google Calendar. Besides, tasks are not supported in stock Android.

## Using SmartCloud Connect with OWA for Android and iOS

You can use Outlook Web App for Android or iOS with SmartCloud Connect. One of the key advantages of the OWA App over native email clients is its support for Outlook Add-Ins. As a result, you can not only share your emails and contacts via the Salesforce category and folder, but you can also take full advantage of using the SmartCloud Connect Add-In.

With OWA, you can share the following objects with Salesforce:

- Email messages
- Contacts
- Calendar Events

Note: Tasks are not supported in the OWA for Android and iOS application.

## Types of Deployment

There are main types of deployment:

- **Multi-tenant.** It is a default option. The application is hosted on the Invisible.io Azure server stack.
- **Single-tenant.** It is a separate (single) instance on the Invisible.io Azure.
- **On-premise.** It is located on a local server of the customer.
- **Client's Azure.** It is located on the client's Azure server stack.

## Supported Salesforce Editions

SmartCloud Connect supports Sales Cloud, Service Cloud, Health Cloud, Marketing Cloud, Community Cloud, and Force.com platforms. See below for more information on the supported editions.

### Salesforce Sales Cloud Editions

SmartCloud Connect is compatible with most of Salesforce Sales Cloud editions:

| Sales Cloud Edition | Supported |
|---|---|
| Personal Edition | No |
| Contact Manager | No |
| Group Edition | Yes |
| Professional Edition | Yes |
| Enterprise Edition | Yes |
| Unlimited and Performance Edition | Yes |
| Developer Edition | Yes |

### Salesforce Service Cloud and Health Cloud Editions

SmartCloud Connect is compatible with all Salesforce Service Cloud and Health Cloud editions:

| Service Cloud or Health Cloud Edition | Supported |
|---|---|
| Professional | Yes |
| Enterprise | Yes |
| Unlimited | Yes |

### Salesforce App Cloud (Force.com) Editions

SmartCloud Connect is compatible with all App Cloud (Force.com) editions and custom products built on top of App Cloud:

| App Cloud Edition | Supported |
|---|---|
| Employee Apps and Community | Yes |
| Apps Plus | Yes |
| Heroku Enterprise Starter | Yes |
| App Cloud Unlimited | Yes |

## Salesforce Marketing Cloud Editions

SmartCloud Connect is compatible with all Salesforce Marketing Cloud editions:

| Marketing Cloud Edition | Supported |
|---|---|
| Email, Mobile, and Web Marketing | Yes |
| Social Media Marketing | Yes |
| Advertising | Yes |
| B2B Marketing Automation | Yes |

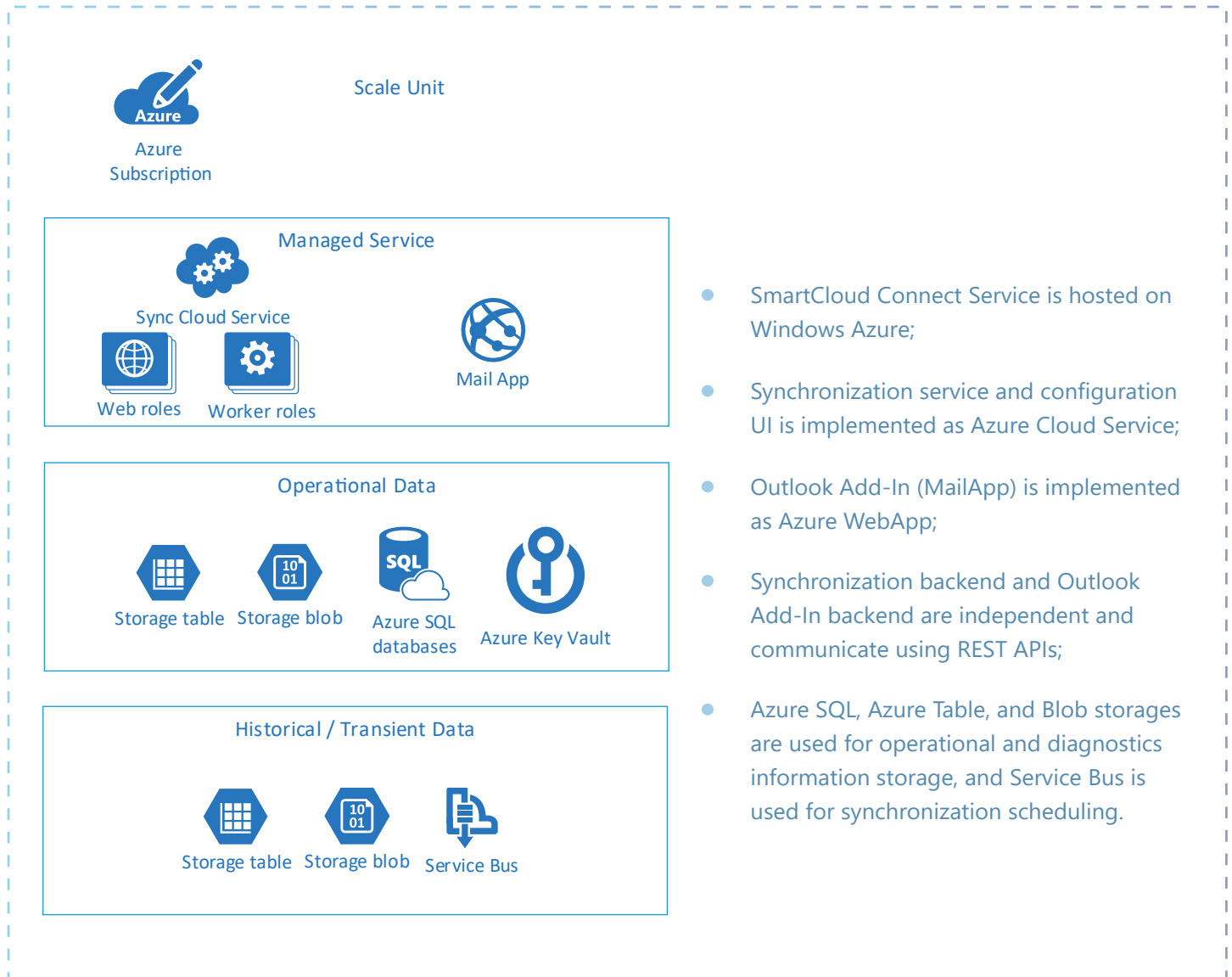## Salesforce Community Cloud Editions

SmartCloud Connect is compatible with all Salesforce Community Cloud editions:

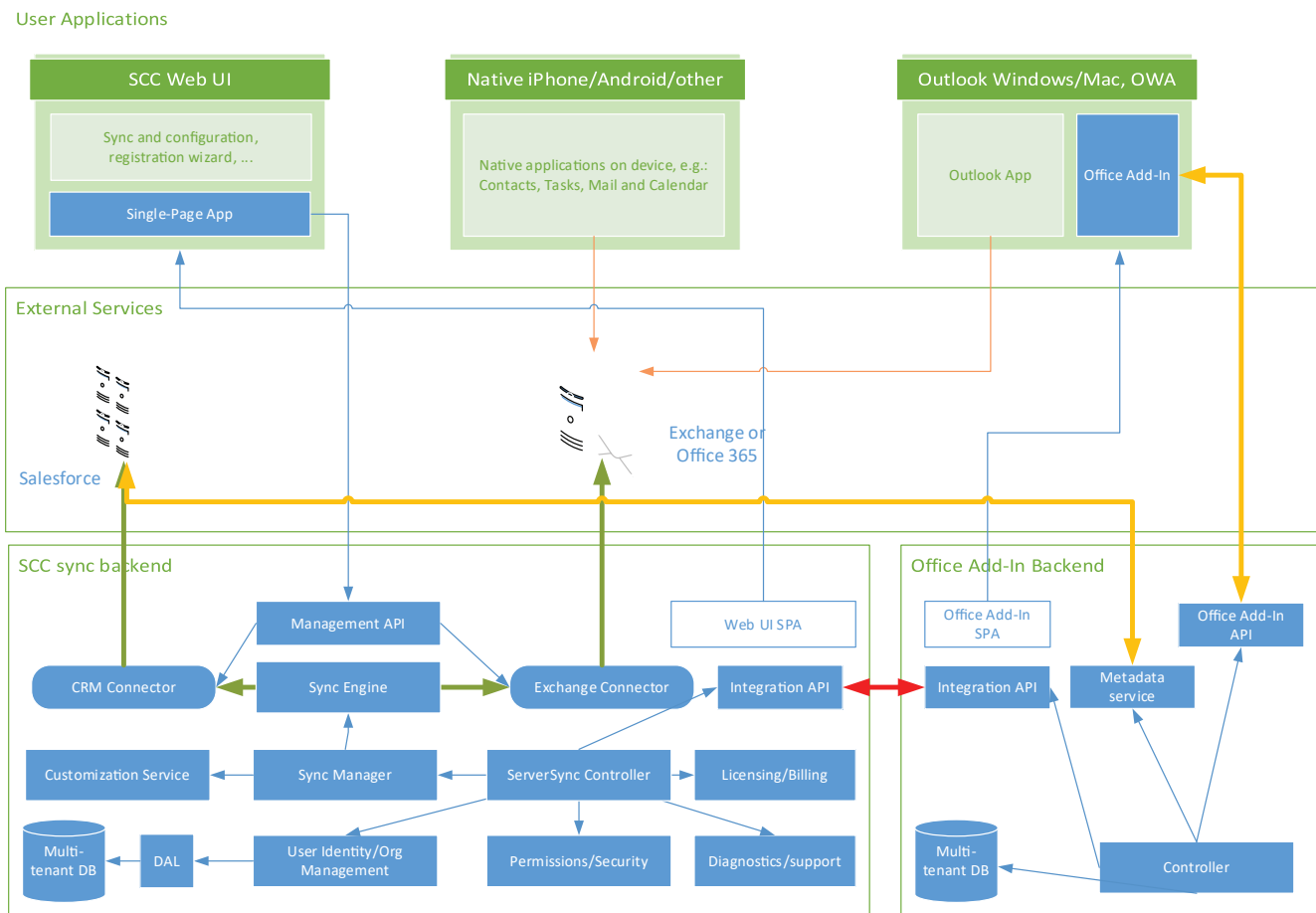| Community Cloud Edition | Supported |
|---|---|
| Customer Community | Yes |
| Partner Community | Yes |
| Employee Apps & Community | Yes |

# TECHNICAL BACKGROUND

## SmartCloud Connect Landscape

SmartCloud Connect is deployed to Azure as scalable Cloud service with following key components:

**Scale Unit**

**Azure Subscription**

**Managed Service**

Sync Cloud Service

**Web roles**   **Worker roles**

**Mail App**

**Operational Data**

Storage table   Storage blob   Azure SQL databases   Azure Key Vault

**Historical / Transient Data**

Storage table   Storage blob   Service Bus

- SmartCloud Connect Service is hosted on Windows Azure;

- Synchronization service and configuration UI is implemented as Azure Cloud Service;

- Outlook Add-In (MailApp) is implemented as Azure WebApp;

- Synchronization backend and Outlook Add-In backend are independent and communicate using REST APIs;

- Azure SQL, Azure Table, and Blob storages are used for operational and diagnostics information storage, and Service Bus is used for synchronization scheduling.

# SmartCloud Connect Components and Data Flow

SmartCloud Connect key components are presented below.



Legend:

- Green arrows: Synchronization data flow;

- Blue arrows: Configuration flow;

- Yellow arrows: Outlook Add-In data flow;

- Red arrows: Backend-to-backend communication;

- Thin orange arrows: native communication between Microsoft Exchange and Exchange clients (out of scope of this review).

Key blocks:

- **User applications** – applications user uses to interact with SCC or data provided by SCC

   a. **SCC Web UI**: user configuration and management interface. Contains registration wizard, user configuration dashboard, etc.;

   b. **Native iPhone/Android/other** – these are devices connected directly to Microsoft Exchange which show to user data provided by synchronization component. No software is installed there, only Salesforce data is consumed. This group of devices is provided for informational purposes only and is not part of this security review;

   c. **Outlook Windows/Mac, OWA** – these are devices capable of running Microsoft Outlook Add-In, and thus providing to user enhanced capabilities.

- **External Services** – services used and enhanced by SmartCloud Connect
  a. Salesforce;
  b. Microsoft Exchange (or Office 365).
- **Sync backend** – Synchronization service front-end and back-end applications.
- **Outlook Add-In backend** – Service which provides Outlook Add-in functionality to compatible devices.

## SmartCloud Connect Main Data Flows

Key data flows of SmartCloud Connect are:

- **Initial setup and configuration flow**
  - User registers with SmartCloud connect and passes registration wizard to get up and running.
- **Synchronization flow**
  - Periodic synchronization is run for user (e.g. every 20 minutes), where SCC connects to user's Salesforce and Exchange accounts and ensures changes are in sync.
- **Outlook Add-In data flow**
  - User accesses Salesforce data from Outlook Add-In.
- **Backend-to-backend communication flow**
  - Sync module checks whether Outlook Add-in is installed for user;
  - Outlook Add-In checks whether Sync module is installed for user;
  - Outlook Add-in checks user license (free/trial/paid) to enable/disable application features.

## SmartCloud Connect integration points and technologies

Summary of integration points:

- **To Salesforce. SCC accesses Salesforce in following scenarios:**
  - Authentication for "Sign-In with Salesforce";
    - For logging into SCC UI, user:
      - Use "Sign in with Salesforce" option which uses OAUTH 2 Authorization code flow + Salesforce Identity Service to authenticate the user in Salesforce and then provide authorizations to the user in SCC UI accordingly to his rights.

  Used technologies:
  - Authentication: Salesforce OAUTH2 Authorization code flow;
  - Data Access: Salesforce REST API, Salesforce Identity Service.

  - Read-only configuration access;
    - During initial setup and configuration, the user can perform following actions in SCC UI:
      - Consent SCC to access user's data in Salesforce via OAUTH2 Authorization code flow. On successful authorization, a refresh token is retrieved and securely stored in SCC DB for future use.

- - - The user may re-request refresh token later to re-acquire it.
  - Get list and configuration of Salesforce views to support view-based record filtering for synchronization. Now only Contact views are supported;
  - Estimate record count which falls in scope of synchronization by running COUNT() query against Salesforce for a given filter;
  - Allow opening record in Salesforce by its ID.

**Used technologies:**

- Authentication: Salesforce OAUTH2 Authorization code flow, or (if user decides) login to Salesforce via login/password;
- Data access: Salesforce REST API;
- Constructing of direct URL of record in Salesforce by appending record ID to Salesforce instance URL.

- Read/write data access for Synchronization and Outlook Add-In.
  - When periodic synchronization is run for the user, or when an interactive user accesses Outlook Add-In, SCC accesses a subset of user data in Salesforce. This includes:
    - Query list of records satisfying pre-defined criteria;
    - Add/Update/Remove records.

**Used technologies:**

- Authentication: via saved refresh token or (only for synchronization component – also via login/password);
- Data Access: Salesforce SOAP and REST APIs.

- **To Microsoft Exchange / Office 365. SCC accesses Salesforce in following scenarios:**
  - Authentication for Office 365 OAUTH 2 flow;
    - To sign in to Office 365 SCC supports OAUTH2 Authorization code flow. For on-premises Exchange 2010-2016, login via login/password is supported as well.

**Used technologies:**

- Authentication: ADAL, Office 365 OAUTH2 Authorization code flow;
- Data Access: EWS (Exchange Web Services API).

- User Identity token validation for Outlook Add-In;
  - Outlook Add-Ins rely on Exchange Identity Tokens provided by Exchange to authenticate the user to Outlook Add-In backend. For more detail see here: https://msdn.microsoft.com/en-us/library/office/fp179828.aspx

**Used technologies:**

- Authentication: based on Exchange identity tokens (link above);
- Data Access: HTTP/REST.

- Read/write data access for synchronization and Outlook Add-In.
  - When periodic synchronization is run for the user, or when an interactive user accesses Salesforce via Outlook Add-In, SCC accesses a subset of user data in user's mailbox in Microsoft Exchange to perform synchronization services. This includes:
    - Query list of records satisfying pre-defined criteria;
    - Add/Update/Remove records.

Used technologies:
- Authentication: saved OAUTH2 refresh token. For synch, it's also possible to authenticate using user login/password;
- Data access: EWS (Exchange Web Services API).

- **Private REST API. Used for backend-to-backend communication.**
  - Sync and Outlook Add-In backend components communicate via private REST APIs to check if user is register ed in the counterpart application, or to check user license

Used technologies:
- Authentication: Basic Authentication with pre-shared key over HTTPS;
- Data Access: custom REST APIs.

- **REST API and SCC Web UI. RESTful APIs consumed by Web UI Single-Page Application.**
  - SCC Web UI Single Page App uses REST API to interact with SCC sync backend for user setup and configuration

Used technologies:
- Authentication: OAUTH-based authentication over HTTPS;
- Data access: custom REST APIs.

# DATA FLOW

## Credentials

Depending on user decision, SCC accesses Salesforce using either of following credentials:

- OAUTH2 refresh token (and uses that to acquire OAUTH2 access tokens);
- User login/password to Salesforce.

The preferred authentication method is OAUTH2, however, for better compatibility, authentication using login/password is also supported for synchronization component.

User credentials are stored in a secure way with following key requirements:

- The whole configuration is encrypted on storage via full DB encryption;
- Credentials stored in DB are additionally encrypted on application level and can only be accessed by an application capable of decrypting credentials. Encryption keys are periodically rotated;
- Credentials are filtered out from any logging/diagnostic information generated by product and are used ONLY for sending requests during synchronization or when user is accessing configuration UI;
- Credentials are never sent to front-end. All access to Salesforce is performed from service backend only.

The data flow for user credentials is following:

- User enters his credentials to Salesforce during initial registration, and refresh token is securely stored in DB;
  - Alternative scenario for synchronization component – instead of refresh token, user's login/password may be used
- User configures his sync settings – SCC runs estimation queries and accesses Salesforce contacts view configurations;
- Once user enables synchronization – synch service periodically connects to Salesforce via user's refresh token or stored credentials to perform synchronization;
- Once user decides to update his password or refresh token, a new value is stored in DB;
- Once user requests removal of his account, the data is securely removed from the system;
- Once user runs Outlook Add-In – user is authenticated using Exchange identity token, then saved refresh token is used to connect to Salesforce;
- No logs/dumps ever show user credentials.

## Salesforce Objects Accessed

In both cases, access to Salesforce is granted to individual users using their credentials (or derived refresh tokens). Thus, using SCC user can see only data which is visible to him in Salesforce. All Salesforce visibility and security rules prevail.

### Outlook Add-In

Outlook Add-In may access any standard or custom Salesforce type, as configured by the user. Users select which types and which fields of these types they want to see.

Data used by Outlook Add-in is never stored on backed, in Microsoft Exchange or in an external system. It is used ONLY to display it to the user within Outlook Add-In UI.

## Synchronization Service

Following Salesforce record types accessed:

- Contacts;
- Leads;
- Accounts;
- Events;
- Tasks;
- Emails;
- Cases.

Actual records are accessed ONLY during a synchronization session, or when the user wants to investigate a synchronization issue.

Out of the box configuration accesses only standard fields of above record types, however, it's possible that some customers of SCC request customization to synchronize additional record types or custom fields of above types to Microsoft Exchange to match their organization rules.

Salesforce data used by synchronization engine is stored on Microsoft Exchange user mailbox as custom Contacts, Tasks or Meeting records in Microsoft Exchange.

No Salesforce data is stored on SCC sync backend besides record Ids and record last update times which are used for the synchronization process.

When diagnostic logging is ON (it is OFF in standard conditions, may be ON for development instances and TEMPORARILY for selected users for troubleshooting), only non-personally identifiable information is logged to diagnostic logs. For example, for a Contact, a First/Last name is logged, for a Task – the name of the task and due date, etc.

The data flow for synchronized records is:

- At the beginning of sync session, list of changes from the last sync is formed by querying Salesforce and Exchange back-ends;
- Any detected changes are analyzed, and appropriate sync job is scheduled to perform this action (update on another side, insert record on another side, etc.);
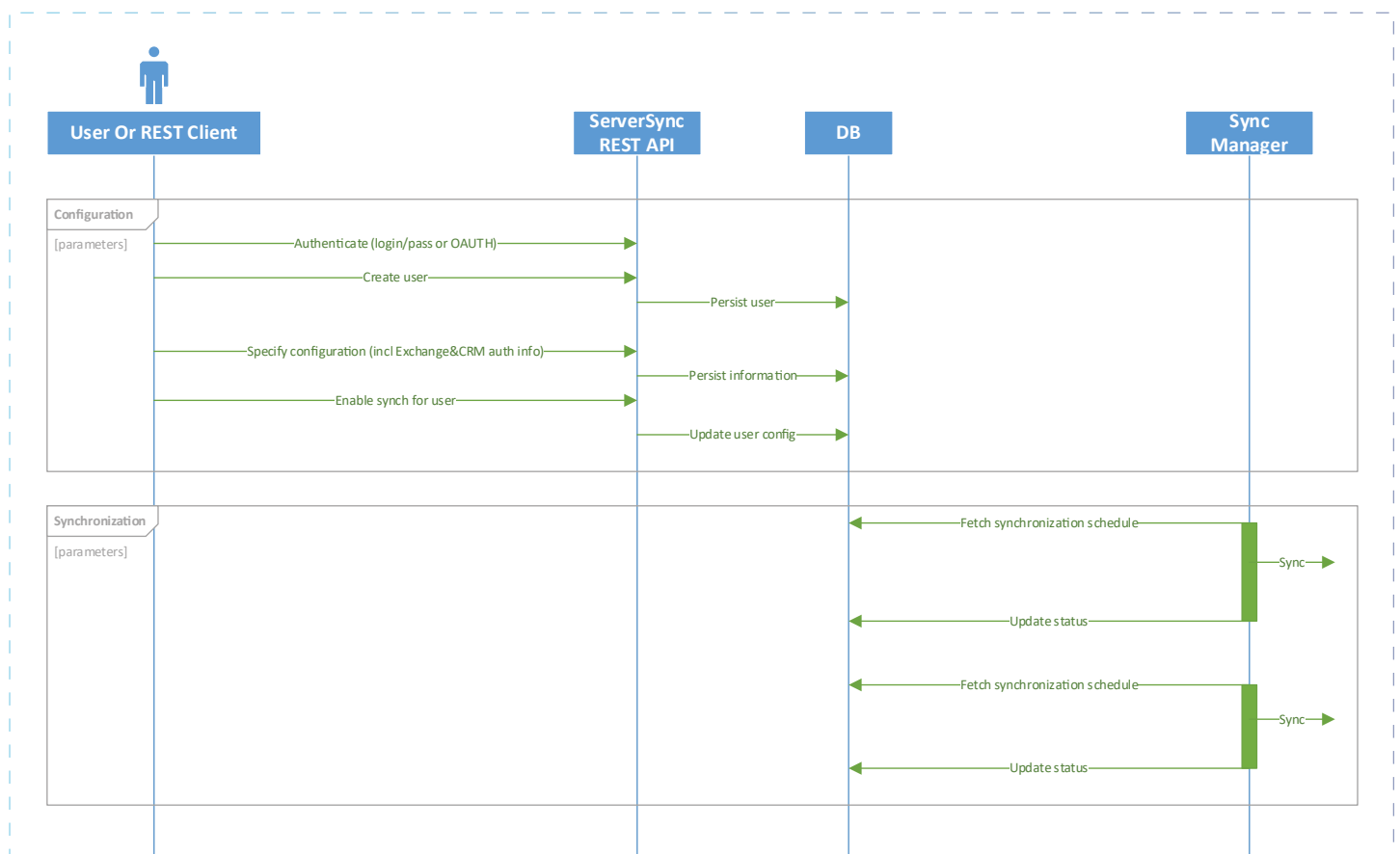- Any scheduled jobs are executed.
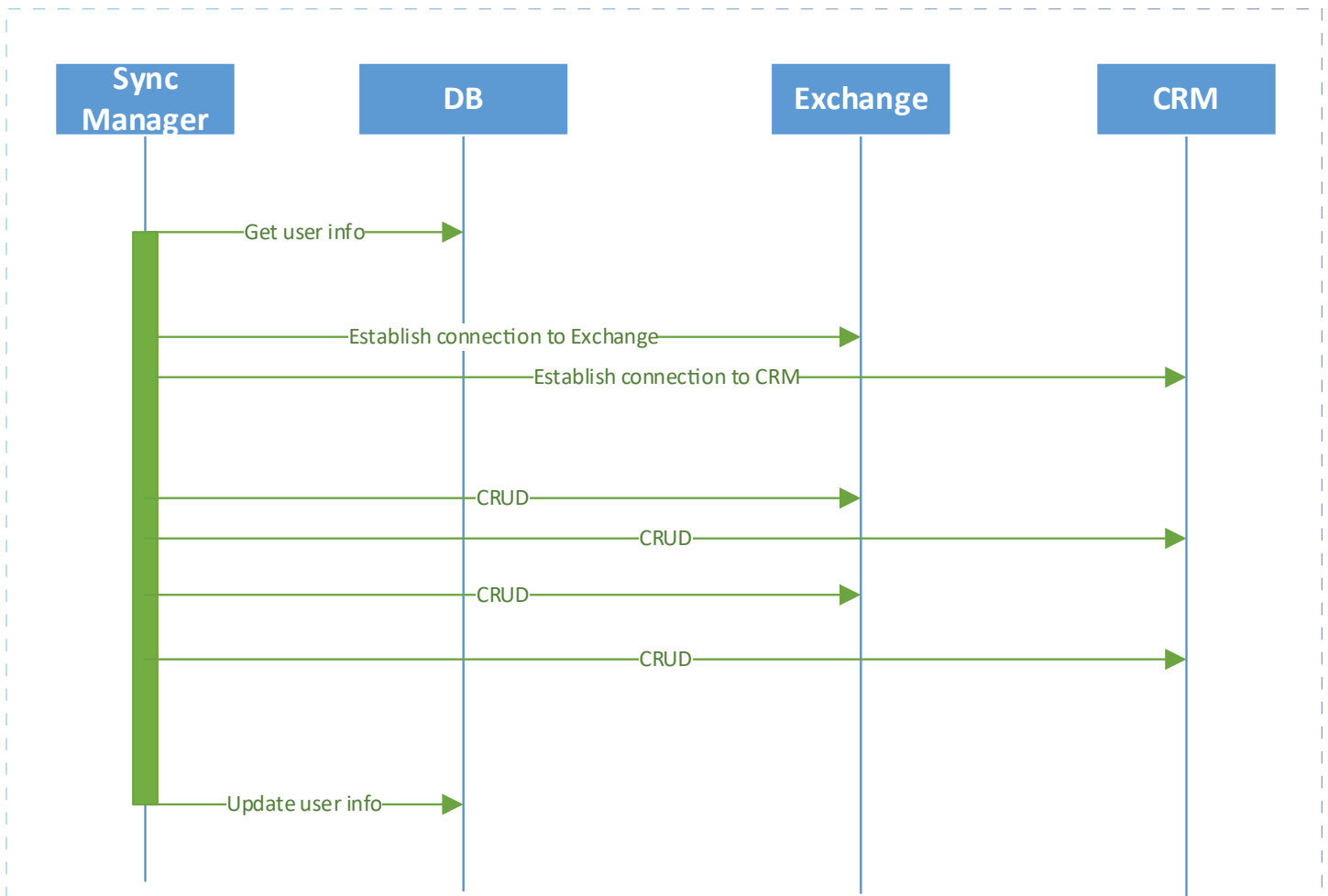
# PRIMARY USE CASES

Primary use cases for SCC are:

- User registration/configuration;
- Execution of synchronization session.

See SmartCloud Connect Functionality Summary for more details.

## User Registration/Configuration

# Execution of Synchronization Session

# ACCESS LEVEL DESCRIPTIONS

## Salesforce Access

The Salesforce data is ALWAYS accessed using credentials of the user who granted access to Synch service or to Outlook Add-In, thus all and any role-based access controls set up in Salesforce are honored.

## SCC API Access

SCC architecture is built on granular permission- and role-based access control. The security model in SCC is built around following entities:

- Principal – the user or administrator of the service which can perform actions.
- Permission – specific operation which can be allowed or disallowed (edit user, view user, control synchronization, etc.).
- Role – named a group of permissions.
- Resource – entity to which permission/role is applied, can be user or group of users.
- Grant – rule which allows given principal to perform operations allowed by selected permission on associated resources.
- Permissions and grants are additive; without explicit authorizations, no operation is allowed against any resource.
- Grants are defined in Access Control List (ACL) for the system, and SCC permission system validates any requests from any principals against ACL.

For individual user accounts, this system is downscaled to provide each user necessary permissions for self-management and to prohibit any user accessing other user data. For large enterprises full granular configuration of permissions is possible.

# USED TECHNOLOGIES

SCC is implemented as scalable Azure Cloud Service which comprises of front-end servers (Azure Web Roles) and back-end servers (Azure Worker Roles), and Azure Web Sites

- Azure Web Roles runs user UI for sync component (Single Page HTML Application written in Angular) and REST API consumed by UI
- Azure Worker Roles execute synchronization jobs for users
- Azure Web Sites run UI and backend for Outlook Add-In

Azure Web Sites run UI and backend for Outlook Add-In

Azure Cloud solution implements out of the box:

- Private network for all services used by solution (VMs, DB, Message Queue, Storage, etc.);
- Firewall;
- Load balancer.

Back-end technologies:

- .NET 4.5.2, C#;
- MS SQL Azure as primary DB;
- SQLite for per-user synchronization state DB;
- Entity Framework;
- ASP.NET Identity Framework;
- C++;
- ASP.NET WebAPI, MVC;
- Exchange Web Services;
- Salesforce REST API;
- Salesforce SOAP API;
- HTTPS for all inbound and outbound access;
- OAUTH.

Front-end technologies:

- Angular JS, Bootstrap;
- Single page application.

# CONCLUSION

SmartCloud Connect for Salesforce is a leading Outlook / Office 365 and Gmail Add-in for Salesforce.

SmartCloud Connect is an application that increases sales productivity and CRM adoption by melding Salesforce with Outlook, Gmail, Office 365. With SmartCloud Connect users can instantly view all Salesforce data directly within their mailbox or calendar and automatically synchronize events, contacts, tasks and emails for a streamlined user experience.

SmartCloud Connect provides insight into clients using real-time data from Salesforce such as lead information, opportunities, contracts, deals, associated accounts, cases, planned tasks and events, and more. Users can set emails to associate with Salesforce objects automatically or manually meaning all the necessary data is available and contacts can be edited or enriched at any time. Contacts and leads can also be created within the email client, and SmartCloud Connect will automatically auto-populate all the relevant information by scanning the email data and signature.

# ABOUT US

Invisible Solutions is the pioneer and global leader in software development, integration, and customization of complex enterprise-class software solutions, cloud applications, and environments that teams use all day long. We have more than 10 years' experience in melding enterprise systems such as CRM, ERP, HRM, and Marketing Automation with personal communication applications like Office 365, Outlook, Gmail, Lotus Notes, various messengers or native mobile applications. Our partners have decided to use our technology and move forward with our experience to develop their own products. We've got ISV status from Microsoft and Salesforce. It is proof that with our maturity, know-how and innovation that we are trusted by over 500,000 clients, which use more than 20 of our products worldwide.

**5 key benefits of Invisible.io:**

- Connect your Enterprise system with Personal user tools
- Stay up-to-date and always on top of a trend
- Increase user adoption and focus internal resources on other priorities
- Fast track releases to your customers
- 10+ years in business, more than 500,000 users worldwide

**We are an OEM / Re-selling partners with:**

# APPENDIX A: LINKS

http://docs.sf.invisiblesolutions.com/article/43-supported-salesforce-editions

http://docs.sf.invisiblesolutions.com/article/60-suppored-email-clients-for-microsoft-office-365-with-exchange-online-plan

http://docs.sf.invisiblesolutions.com/article/59-supported-email-clients-for-microsoft-exchange-2010

http://docs.sf.invisiblesolutions.com/article/7-supported-email-services-and-platforms

http://docs.sf.invisiblesolutions.com/article/61-supported-email-clients-for-microsoft-exchange-2013-2016

http://docs.sf.invisiblesolutions.com/article/62-supported-email-clients-for-outlook-com

http://docs.sf.invisiblesolutions.com/article/64-supported-email-clients-for-imap-servers

http://docs.sf.invisiblesolutions.com/article/63-supported-email-clients-for-gmail

http://docs.sf.invisiblesolutions.com/article/27-using-smartcloud-connect-on-a-mobile-device

http://docs.sf.invisiblesolutions.com/article/8-privacy-and-security