How IBM Leads in Building Enterprise Social Collaboration Solutions in the Cloud

Implementing the CSCC Customer Cloud Architecture for Enterprise Social Collaboration

Table of Contents

How IBM Leads in Building Enterprise Social Collaboration Solutions in the Cloud .............. 1

Executive overview ..................................................................................................................... 2

Architecture overview ................................................................................................................. 3

Components ................................................................................................................................. 4

User network ............................................................................................................................... 4
  Web applications (via web browser) ......................................................................................... 4
  Mobile application .................................................................................................................... 4
  Desktop rich client ..................................................................................................................... 5

Service consumer ....................................................................................................................... 5
  Integrated digital experience ..................................................................................................... 6
  Peer cloud ................................................................................................................................. 6

Provider cloud components ....................................................................................................... 7
  Edge services ............................................................................................................................. 7
  Enterprise social services ........................................................................................................... 8
  Peer services ............................................................................................................................. 10
  Information governance ............................................................................................................ 11
  Security ..................................................................................................................................... 12

Enterprise applications ............................................................................................................. 13

Implementation example ........................................................................................................... 14
  Runtime flow .............................................................................................................................. 15

Deployment considerations ......................................................................................................... 17
  Determine the license model ...................................................................................................... 17

Appendix A: Enterprise social services details .......................................................................... 19

Appendix B: Peer services details ............................................................................................... 23

Acknowledgements ...................................................................................................................... 26
Executive overview

This paper is intended for information technology (IT) and business decision makers exploring how IBM Enterprise Social Collaboration can enable organizational engagement across employee, customer, and partner interactions. It can help you understand the technical capabilities and integration requirements necessary to deliver enterprise social collaboration solutions. Social collaboration solutions can be applied to different industries and can align with their key business initiatives. Their value becomes visible when the solution helps different roles or departments meet their business needs within the context of an overall collaboration initiative and organizational goal.

The IBM Connections™ family provides a security-rich social network platform that infuses social into all your business processes and throughout your entire employee, partner, and customer experience. The IBM Connections social network platform and its family of products can help your organization engage the right people, accelerate innovation, and deliver results. IBM Connections can be delivered to virtually any mobile device and can be deployed on premises and from the cloud.

IBM Connections Cloud is available through three integrated solutions, each including a strategic selection of features that are designed to meet an organization’s unique business needs. There is also a stand-alone collaboration solution for email and meetings.

The capabilities defined in the reference architecture can be applied modularly to address the needs defined in an organization or in a business initiative. The interfaces and dependencies between the enterprise social collaboration platform and an organization’s on-premises systems or third-party systems are important factors when defining the final system architecture.

The Cloud Standards Customer Council (CSCC) Customer Cloud Architecture for Social Collaboration describes a well-tested and popular reference architecture for traditional collaboration production environments. It shows you how to leverage social collaboration tools to harness ideas, exchange information, and increase the speed of innovation across the business.

This paper shows how IBM supports the CSCC Customer Cloud Architecture for Enterprise Social Collaboration in dedicated and on-premises, public cloud, hybrid cloud, and private cloud environments, and does so in a secure, scalable, and flexible manner.
Architecture overview

The enterprise social collaboration architecture provides the foundational capabilities and integration requirements that support and enable business patterns and social business scenarios.
Components

The following sections describe each of the major components, the capabilities for social collaboration in the cloud, and how IBM supports them.

User network

The user network contains applications that allow users to interact with cloud services, which are categorized as desktop clients (client), mobile applications (mobile), and web applications (web). In this context, the focus is on social network interaction, which can be defined as digital inputs and outputs analogous to physical interaction. For example, a blog post is like pinning a memorandum on a notice board.

The user’s access to the enterprise social services is supported using desktop clients, web applications, and mobile applications.

Web applications (via web browser)

IBM Connections is delivered as a suite of web applications either hosted as cloud services or installed on client-owned servers (on-premises). Users can easily access the application from any computer connected to the Internet using a standard browser. For a list of supported browsers and operating systems that have undergone compatibility testing by IBM, see the System Requirements available online.

- Software to block pop-up windows must be disabled for some features to work.
- Plugins must be installed for some features to work.
- A user’s mail file template must be at 9.0 or higher to use IBM Verse™.

Mobile application

IBM Connections mobile application provides a native set of collaboration capabilities so you can work seamlessly with your team, on the device of your choice, anytime, anywhere. The application provides easy navigation and quick access to information. IBM mobile applications are included with IBM Connections Cloud. Download IBM Connections, Verse, Meetings, Chat, or Files application to your mobile device from a marketplace (App Store for iOS devices or Google Play for Android devices). Review additional information on the mobile application and access.
You can customize the hidden left navigation menu based on personal preferences and arrange the applications based on work needs to provide faster access to the information you need, when you need it. A companion application, **IBM Connections Editor**, provides a full-featured mobile editor. With IBM Connections Editor, you can edit your files on the go by taking files directly from IBM Connections Files and easily viewing or editing those files on your mobile device.

**Desktop rich client**

IBM Connections plug-ins provide a seamless way to share and sync files from your desktop to IBM Connections and IBM Connections Cloud. Desktop plug-ins are available for both Microsoft Windows and Mac platforms. Learn more about IBM Connections plug-ins:

- [IBM Connections Desktop Plug-ins for Microsoft Windows](#)
- [IBM Connections for Mac](#)

Using the desktop plug-ins, you can easily share content between your Windows or Mac desktop and IBM Connections and IBM Connections Cloud. You can also use sync so that you always have the latest copy of a file, whether you are opening it from your desktop, from a Connections server, or from Connections Cloud. Additionally, IBM Connections Plug-ins for Microsoft Windows lets you share and access content from Microsoft Office and Outlook.

**Service consumer**

In some cases, the user may not directly interact with social services through the user network, but may "consume a service" through a different application interface. A service consumer is a pattern where a user or a peer cloud consumes from or contributes to the social services indirectly. This can be achieved through an external system consuming services from the enterprise social services provider and making those services available to its users through the following patterns.
Integrated digital experience

An integrated digital experience is a set of integrated capabilities that provides an engaging, personalized, relevant, and meaningful digital presence and interaction with the user. IBM Digital Experience is a leading integrated digital experience platform. Available as a cloud service called IBM Digital Experience on Cloud, it delivers complete user experiences in one unified platform, allowing clients to combine applications, content, and people together into one unified presentation. With advanced content management, IBM Digital Experience on Cloud delivers a highly personalized experience, considering role, personal settings, device settings, and more.

Peer cloud

Business users regularly use and access cloud services to meet various needs. Whether these experiences are used for core business processes or used to meet just-in-time needs, it can be very compelling to integrate social and collaborative cloud services into them. These cloud services provide user experiences that consume content, services, and interfaces from the social services.

- **Software-as-a-Service**: A fit-for-purpose cloud service providing an end-to-end business service that is typically used by select users within an organization. By integrating social services and content, line of business experiences can connect with the broader organization and enhance collaborative work in the context of the business process. IBM Connections Cloud provides an integrated suite of collaboration solutions designed with users in mind. Built and deployed on IBM’s security-rich cloud and delivered as a service, Connections Cloud allows you to seamlessly engage with customers, partners, and colleagues through a single intuitive and cost-effective application, regardless of device.

- **Cloud services (API)**: The cloud experience is generally applicable to a broad range of users. Cloud-based utility experiences can be extended by integrating social services and content into them. The IBM API management family of products gives you software tools to create, manage, and share APIs in a secure, scalable environment. IBM API Connect™ is IBM’s latest API management solution that can run on premises and in the hybrid cloud. IBM API Connect is a complete API lifecycle management solution that can make things easier for developers, IT, and line of business users.
• **Platform-as-a-Service (PaaS):** IBM Bluemix® is a cloud platform as a service (PaaS) developed by IBM. It supports several programming languages and services as well as integrated DevOps to build, run, deploy, and manage applications on the cloud. The Bluemix cloud platform is not just about creating new applications or migrating existing ones, on-premises or off-premises implementations, or offering IaaS and PaaS cloud services. It's designed to bring all of these aspects together to help you solve your real, complex business problems in the cloud.

Many organizations rely on integrated cloud platforms for core business functions. By integrating social services content and services with existing PaaS experiences, business users have a context for their collaborative work.

Social services connect the organization while the experiences of the integrated cloud platform are focused on driving the business function. Through integration, social services add a human context to the business function or process. For example, a social directory integrated into a cloud PaaS platform can expose expertise to new and experienced users in the context of the business functions provided by the cloud service.

### Provider cloud components

#### Edge services

To access the enterprise social services, cloud providers must offer connectivity options that allow these services to be delivered to users. Edge services provide the capabilities needed to allow data to flow safely from the Internet into the provider cloud and into the enterprise.

Key capabilities in this domain include the following:

- **Domain name system (DNS):** Resolves the URL for a particular web resource to the IP address of the system or service that can deliver that resource. IBM Connections Cloud uses Akamai, an industry-leading network services provider, for DNS. Akamai Global Traffic Manager DNS provides intelligent site resolution services based on several differing algorithms, including availability-based, geographic location, percentage-based, and weight-based, which can contribute to better performance.

- **Content delivery network (CDN):** IBM Connections Cloud leverages the Akamai content delivery network technology as part of its improved SaaS and web user experience. CDNs optimize the route between the user’s workstation and the service. Akamai Edge Load Balancers are located worldwide. Users are routed to the closest edge load balancer, which then routes to the appropriate data center based on user and data center state.
• **Firewall**: Controls communication access to or from a system, permitting only traffic that meets a set of policies to proceed and blocking the rest. IBM Bluemix (formerly IBM SoftLayer®) hardware firewalls are network devices that are connected upstream from the server environment (pod), blocking unwanted traffic before it reaches your server. All hardware firewalls are built on enterprise grade hardware firewall appliances. Customers choose between the Shared Firewall, Dedicated Firewall, and Fortigate Security Appliance based on their specific performance and feature requirements. Hardware firewalls can be added at any time without the need to re-IP the server and can be activated instantly. Since monthly server bandwidth is recorded at the server switch port, traffic blocked by the hardware firewall is not counted against your monthly allotments. This prevents you from paying for unwanted traffic.

• **Load balancers**: Provides distribution of network or application traffic across many resources (such as computers, processors, storage, or network links) to maximize throughput, minimize response time, increase capacity, and increase reliability of applications. IBM Connections Cloud uses Akamai, an industry-leading network services provider, for edge load balancing. Akamai provides an intelligent, protocol-aware traffic routing service, employed to ensure appropriate site selection based on protocol-specific state information. Akamai Edge Load Balancers are located worldwide and augment the Global Traffic Manager to ensure that the user is routed to the appropriate site based on user and data center state.

**Enterprise social services**

IBM Connections is a leading business social network platform that helps you get work done. Connections allows your organization to engage the right people, accelerate innovation, and deliver results. Using this business social network, you can confidently share knowledge beyond traditional organizational boundaries. Connections can help you improve decision-making, increase productivity, and accelerate time to market on a platform that is delivered on premises or as Software-as-a-Service on IBM Cloud. IBM Verse is a powerful stand-alone email hosting solution that enables users to access their business communications from a laptop or desktop browser or from a mobile device. This email and business messaging experience is based on an innovative user-centric design, including social analytics and advanced search capabilities.
IBM Enterprise Social Services includes capabilities across the five dimensions of the CSCC Enterprise Social Reference Architecture. The IBM capabilities are highlighted and mapped to the corresponding CSCC dimension in the graphic on the right and summarized in the following table. You can find additional details on these capabilities in Appendix A of this document.

IBM Collaboration capabilities table

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Home</strong></td>
<td>See what’s happening across your social network.</td>
</tr>
<tr>
<td><strong>Files</strong></td>
<td>Post, share, and discover documents, presentations, images, and more.</td>
</tr>
<tr>
<td><strong>Blogs</strong></td>
<td>Share knowledge and experiences. Present ideas and learn from others.</td>
</tr>
<tr>
<td><strong>Profiles and micro-blogs</strong></td>
<td>Find the people you need, build your network, share your expertise, and communicate status updates, thoughts, and opinions.</td>
</tr>
<tr>
<td><strong>Bookmarks</strong></td>
<td>Save and share links. Discover what others have shared.</td>
</tr>
<tr>
<td><strong>Docs (co-editing)</strong></td>
<td>Create and edit Microsoft Office or Open Office-based files using your browser with real-time co-editing.</td>
</tr>
<tr>
<td><strong>Meetings</strong></td>
<td>Always ready online meeting room. Share files, polling, whiteboard, screen-sharing, and record your meeting, meeting report, and audio/video.</td>
</tr>
<tr>
<td><strong>Activities</strong></td>
<td>Organize your work. Manage and track tasks. Build templates for repeatable processes.</td>
</tr>
<tr>
<td><strong>Communities</strong></td>
<td>Bring together people who share common interests and expertise. Collaborate, interact, and stay updated. Common community applications are Activities, Forums, Files, Bookmarks, Blogs, and Wikis.</td>
</tr>
<tr>
<td><strong>Wiki</strong></td>
<td>Collaborate and publish content.</td>
</tr>
<tr>
<td><strong>Forums</strong></td>
<td>Exchange ideas with and benefit from the expertise of others.</td>
</tr>
<tr>
<td><strong>Ideation</strong></td>
<td>Innovate, brainstorm, jam, and vote to turn ideas into action.</td>
</tr>
<tr>
<td><strong>IM/Chat</strong></td>
<td>Collaborate real-time with individuals or groups through instant messaging, audio, or video. Use screen capture tool and share social files.</td>
</tr>
</tbody>
</table>
Peer services

As part of a social implementation, an organization may want to incorporate capabilities that are not inherently provided as a core service from the enterprise social service cloud provider. These capabilities could include functionality that is provided by an external solution at the request of the consumer organization or capabilities that the service provider makes available through a third-party service. Peer services integrate into social services, providing additional functional capabilities and enhanced experiences for users.

IBM Connections allows third-party application developers to integrate iWidgets into the IBM Connections user interface for use in the Communities, Home page, and Profiles applications. The IBM Connections applications (Activities, Blogs, Bookmarks, Communities, Files, Forums, Profiles, and Wikis) and the IBM Connections Home page all have application programming interfaces (APIs) that you can use to integrate with other applications. You can use the APIs to programmatically access and update much of the same information that you can access and update through the IBM Connections user interface.

There are many IBM and OEM add-ons and plug-ins available for IBM Connections to enhance and expand the platform. Some examples are summarized in the table below. Additional information is available in the IBM Collaboration Solutions Catalog and in Apps, Assets & Services for IBM Connections.

<table>
<thead>
<tr>
<th>IBM Digital Workplace Hub</th>
<th>Create a universal intranet to integrate internal communications and custom applications into IBM Connections.</th>
</tr>
</thead>
<tbody>
<tr>
<td>OnTime Group Calendar</td>
<td>Provide a group calendar that allows users to do skills-based searching, overviews, and scheduling.</td>
</tr>
<tr>
<td>IBM Connections Touchpoint</td>
<td>Provide an interactive user experience that can be used for a wide variety of end user touchpoint scenarios.</td>
</tr>
<tr>
<td>Kudos Boards</td>
<td>Visualize an activity as a board (similar to a Kanban Board).</td>
</tr>
<tr>
<td>Kudos Badges</td>
<td>Encourage adoption and engagement.</td>
</tr>
<tr>
<td>AppFusions Integrations For IBM Connections</td>
<td>Leverage a suite of rich, ready packaged integration connectors to make IBM Connections the center of your every workday efforts and collaboration.</td>
</tr>
</tbody>
</table>
Extended capabilities allow functional experiences to be integrated into defined extension points of the enterprise social services experience. Such experiences are often developed by third-party vendors. They are purchased and activated as validated services within the enterprise social service offering. IBM Connections is based on an open and seamless strategy that includes strategic partnerships and integration with Cisco, Actiance, Genband, and Box. These are described in Appendix B of this document.

Information governance

This component consists of processes for assuring achievement of an organization’s policies. It focuses mainly on the policies and procedures governing access to capabilities and information sharing, which may include the following processes:

- Sign-on and onboarding approval process
- Legal compliance
- Regulatory compliance (such as PII, PCI, HIPPA, FINRA, FedRAMP, and others)
- Audit reporting
- Data loss protection
- Corporate policies

IBM capabilities for information governance are as follows.

- **IBM InfoSphere® Information Governance Catalog** provides comprehensive capabilities to define the information governance program’s policies, classifications, and rules; to catalog the data sets available to the organization; and to use analytics to help understand and govern information flow within an organization. By defining a common business language, InfoSphere Information Governance Catalog encourages a standardized approach to managing data and aligning business and IT data requirements.

- **IBM Security Guardium®** is a comprehensive data security platform that provides a full range of capabilities—from discovery and classification of sensitive data to vulnerability assessment, to data and file activity monitoring, to masking, encryption, blocking, alerting, and quarantining sensitive data.

- **IBM Optim™** data management solutions manage data protection from requirements to retirement.
Security
The enterprise social collaboration reference architecture provides the basis for an integrated suite of collaboration tools that combine the business social network with web conferencing and collaboration capabilities such as file storing and sharing, instant messaging, and activity management. As an integrated suite, there may be security considerations that address or are applicable across the platform while others may be unique to a specific service or integration (internal or external).

IBM Security Identity and Access Management solutions strengthen compliance and reduce risk by protecting and monitoring user access in today's multi-perimeter environments. These solutions safeguard mobile, cloud, and social access, prevent advanced insider threats, simplify cloud integrations and identity silos, and deliver actionable identity intelligence.

Authentication to the service
Organizations must ensure that authorized users in their enterprise and external network have access to the data, tools, and applications that they need whenever they need it, while blocking unauthorized access.

Federated identity refers to a relationship between your company and IBM, where your company owns the identity provider that authenticates users to your user directory. After users are logged on to your system, they can use the IBM Cloud service without having to log on again by using single sign-on.

IBM Connections Cloud uses the SAML specification to provide single sign-on. Security assertion markup language (SAML) is an open standard data format from the OASIS standards body that uses signed XML to perform federated authentication. IBM’s federated identity implementation allows customers to choose either the SAML 1.1. or 2.0 version, but most are restricted to the Browser-Post/HTTP POST profiles.

Data security
Data security is an all-encompassing construct to ensure that customer data is secure and available only to authorized users. Data security requires protection of customer data against vulnerabilities in the services by service providers and the physical security of the data centers.

IBM Cloud is secure by design, featuring around-the-clock monitoring and alignment with key standards. You can find additional information on IBM security in the IBM Cloud Services Data Security and Privacy Principles white paper, which provides an overview of the technical and organizational security and privacy measures implemented for each cloud service in compliance with IBM policy.
Where will IBM store customer data?
IBM Connections Cloud is deployed in pairs of geographically separated data centers for disaster recovery purposes. The service is designed to minimize the impact of a complete and catastrophic loss of one of the paired data centers.

Who has access to customer data?
Access for production and operational support, application development, and customer support is provided under a "least required privilege" model to achieve job functions and roles.

A separation of duties matrix is used to determine appropriate access for individuals. The matrix defines what roles can be performed by individuals, limiting their scope and helping to eliminate responsibility conflicts.

The service is deployed in data centers that provide multiple layers of physical protection to systems and data under security controls that are designed to help prevent unauthorized physical access to our systems.

What data will be processed?
Customers own their data. IBM does not mine or repurpose customer data for any other use, internal or commercial. Personally identifiable information (PII) is protected "at rest" with AES 256-bit encryption and strong key strength conforming to NIST 800-90 standards. PII data that may be in transit is protected with TLS encryption.

How is data secured?
The service uses a topology of multiple levels of firewall and separate network segments designed to provide enhanced network protection. IBM implements security practices based on industry standards including ISO 27001-27002. Compliance is independently validated through a SSAE 16 audit. IBM participates in the U.S.-EU Privacy Shield framework.

Enterprise applications
These are typically existing applications in a customer’s data center that accomplish business goals and objectives which may interact with cloud services. Integrating an existing ERP environment with the enterprise social services is an example of an enterprise application interacting with the enterprise social cloud environment to create a hybrid solution. A new product innovation scenario is outlined below, but integration scenarios could include other legacy applications and use cases.
Implementation example

The reference architecture can be applied to numerous scenarios across different industries. Using social services to facilitate collaboration across teams in support of new product innovation is an example of applying social technology to improve a business outcome. Organizations are continually challenged to create competitive differentiation, enable new growth, and deliver quickly while managing costs. Organizations can leverage integrated networks in the cloud to remove challenges to innovation, to promote collaboration, and to organize the information that powers innovation. Figure 2 illustrates a detailed view of the social components, sub-components, and services used in the new product innovation use case. Components in gray are not required for this scenario.

Figure 2: Implementation of enterprise social collaboration for the new product innovation use case
Runtime flow

Figure 3 illustrates an implementation of the reference architecture for the new product innovation use case. By leveraging the IBM Connections platform, organizations can harvest conversations that are occurring inside and outside of the organization. Those conversations and ideas can fuel innovation and drive ideas into action. In the following example, three user roles demonstrate new product innovation at the Acme Company.

1. An existing Acme customer accesses the organization’s website with their mobile device to get information on one of the organization's new products.
2. The customer is invited to join a customer **Community** where they can discuss product needs and experiences with other customers and with Acme's product manager. The customer community is a service provided by the IBM Connections Communities component and is integrated into the Acme Company website using IBM Digital Experience Mobile platform. This mobile experience enables the customer to interact...
with the Acme product team in conjunction with other types of data and applications on the organization’s website.

3. Through the interaction on the website, the customer invokes Profiles, Status Updates, Files, Online Chat, and Personal Network services that are provided by the IBM Connections platform. The user’s requests to connection services are routed by the CSP’s edge services.

4. An Acme product manager checks an Acme product in the cloud-based ERP system and sees an alert about the customer’s feedback on the same product through the integration of the customer Community in IBM Connections. The Acme product manager launches the customer Community from the ERP web experience to review the details of the customer feedback in the Ideation Blog. While the feedback was positive, the customer made a comment that the single size currently available greatly reduces use of the product.

5. The Acme product manager creates a document cataloging the customer’s insights and shares it with their network using the IBM Connections Files service. The product manager can access the IBM Connections platform directly rather than going through the organization’s IBM Digital Experience Cloud site.

6. The product manager assembles experts using the IBM Connections Search service to search the organization’s Profiles and Files to identify talented people who have the appropriate experience to address the customer’s feedback.

7. A team is formed within the IBM Connections Community using a Sub-community where outside experts can be invited to validate product changes and to execute a plan to bring these changes to the market.

8. Because the team is geographically distributed, they use IBM Connections Meetings Cloud for their web conferences to review plans, discuss product details, and make key decisions.

9. The new solution is brought to market leveraging their customer-facing site on the IBM Digital Experience Cloud to manage targeted campaigns across multiple channels, creating awareness and driving customer interactions.

The social reference architecture in the IBM Cloud Architecture Center includes additional implementation examples.

| Hybrid mail | The hybrid mail architecture highlights customer choice and flexibility. Messaging services (mailbox, user management, calendaring, and personal information management) can be hosted for users in a cloud provider environment, on mail servers hosted within the enterprise network, or both. |
## Merger and acquisition
The enterprise social services platform enables merging entities to form a single networked organization. It can be used to support key metrics including, but not limited to keeping the business running, employee engagement, employee retention, and speed of integration.

## New employee onboarding
New employee onboarding leverages the social platform to help provide faster onboarding, streamlined access to experts, increased productivity, ability to build their network and reputation, and increased employee satisfaction.

## New product innovation
Organizations can leverage integrated networks in the cloud to remove the challenges to innovation, to promote content collaboration, and to organize information that powers innovation.

## Workplace and public safety
A key factor in workplace safety is people. Reduce or eliminate common culture, education, communication, and leadership issues with social business to prevent incidents from occurring.

### Deployment considerations
IBM Enterprise Solution Collaboration solutions support several deployment options including public and private cloud (bring your own license), public cloud Software-as-a-Service, and hybrid cloud combining on-premises and cloud implementations.

### Determine the license model
Understanding the costs and implications of the software license model is important not only for the one-time and reoccurring costs of the solution, but may also influence the selection of the service provider and service model through which the social services are obtained. IBM has flexible licensing options to address customer needs across SaaS, on-premises, and hybrid deployment models.

IBM Connections Cloud offers integrated solutions that include a strategic selection of features designed to meet your unique business needs. Or, if you need a lighter weight collaboration option, check out IBM’s stand-alone collaboration solutions for email and meetings. These are the product editions:

- **IBM Connections Cloud S1**: The most popular integrated solution, IBM Connections S1 includes everything you need for today's collaborative business: enterprise-class email, instant messaging, online document editing, web conferencing, and file sharing. Connections S1 is a complete, comprehensive social network platform that’s simple to deploy and use.
• **IBM Connections Cloud S2**: A lighter weight solution, this integrated suite of IBM Connections collaboration software tools offers the same functionalities as Connections S1, except for email. It includes web conferencing and collaboration capabilities, like file storing and sharing, instant messaging, and activity management.

• **IBM Connections Social Cloud**: This is the lightest integrated solution for businesses that don’t need email or online web meetings. IBM Connections Social Cloud is an innovative set of collaboration services that includes Connections Files Cloud, Connections Docs Cloud, and Connections Chat Cloud.

• **IBM Verse**: A powerful, security-rich stand-alone email solution that enables users to access their business communications from a laptop or desktop browser or from a mobile device.

• **IBM Connections Meetings Cloud**: A full-featured online meetings solution delivered from the IBM Cloud. Connect with clients and coworkers from virtually anywhere with this stand-alone collaboration solution.

Additional details on features and comparisons between editions can be found on the IBM Connections Cloud solution page.
Appendix A: Enterprise social services details

Additional details on the key capabilities in this domain summarized in *Enterprise social services* section of this document include:

**Networking:** IBM Connections helps you tap into the collective knowledge of the people in your organization. By filling out your profile with rich social information, such as your interests, hobbies, and tags that indicate your area of expertise, you can help people get to know you better. If people know who you are, what you do, what projects you work on, which tools and technologies you use, and the problems that you are trying to solve, then they can connect with you in a meaningful way.

**Search Profiles** to find people by their contact information or by searching on their interests, experience, and work projects. The search control is available on every page. You can also open the **Directory** tab to search for people in your organization. For a more targeted directory search, use **Display full search options** on the Directory tab to search for data in specific fields.

**Homepage:** The Homepage serves as a portal for user’s social collaboration. It is a central location that provides a snapshot of the latest updates from IBM Connections and where you can work with entries in your activity stream. The Homepage module includes a "recent updates" display which shows changes such as new content posts and status updates that are relevant to the user.

Events are generated by the various IBM Connections applications whenever an activity occurs in the system. Information about these events is stored in the **News** repository. The Homepage application pulls data from the repository to display only the events that are relevant to a specific user on that user’s homepage.

**Communities:** IBM Connections Communities enable ad hoc and planned collaboration around a project or area of interest. A place where people who share a common interest can interact with one another, share information, and exchange ideas. Community members can participate in community-specific activities and forums, and can share **Blogs, Bookmarks, Feeds,** and **Files.** A Connections Community can have its own tools:

- Media gallery
- Event calendar
- Ideation
- Microblogging
- Blog
- Forums
- Bookmarks
- Activities
- Feeds
- Member list
Communities also provide a **Community Library** that provides a way to add files and work with drafts, manage reviewers, publish in Communities, and manage files from remote document repositories.

**Blogs:** The Blogs application of IBM Connections is a tool that enables you to create an online journal where you can share information with a community in an efficient and dynamic style. In a business setting, you can use Blogs to deliver timely information with a personal touch.

**Forums:** The Forums application of IBM Connections enables a team to discuss issues that are pertinent to their work. Forums are a place to brainstorm and collect feedback on topics that are relevant to you and your colleagues. Statements and comments are collected in a format that captures the exchange of ideas and presents them as an ongoing conversation.

**Moderation** allows moderators and Community owners to better control what is displayed in certain applications when it is enabled. Moderators can review Blogs, Forums, and Files content before it is posted to Connections, and manage content after it is added to IBM Connections.

**Bookmarks:** The Bookmarks application of IBM Connections is a social bookmarking tool that you can use to save, organize, and share Internet and intranet bookmarks.

**Activities:** The Activities application of IBM Connections enables a team to collect, organize, share, and reuse work related to a project goal. Activities are structured in a nested tree hierarchy where entries, to-do items, and sections branch off from the root activity. Any non-section entity in an activity can contain rich-text and custom fields for files, links, text, people, and dates. To-do items can also have a due date and a person assigned.

**Wiki:** The Wikis application of IBM Connections enables teams to create a shared repository of information. Wikis are collections of pages about particular subjects. Wiki members can edit or comment on the pages, or can add their own pages. Teams can use wikis to create a central place to collaborate on a project.

**Search:** The Search application performs a linguistic analysis to ensure that different word forms, such as plurals, verb endings, and grammatical tenses, are matched correctly in the search results. The more often that your search term appears in a document, the higher that content is ranked in your search results.

**Files:** Enterprise file sync-and-share is a service that allows users to save files such as documents, photos, and videos in a secure data repository in the cloud, then access and share the files with others and across multiple devices. **IBM Connections Files on Cloud** is designed for today's social and mobile worker, providing a secure, easy-to-use, collaboration and file management environment for all business sizes. This cost-effective, secure file sharing solution is easy to implement using Software-as-a-Service (SaaS) on IBM.
Cloud. A user-centric design allows anyone to confidently share files with their network of customers and partners, and to sync online files to their favorite mobile devices and tablets. It supports both Android and iOS mobile devices.

**Live Collaboration:** Live collaboration provides real-time communication options such as instant messaging, multi-way audio-video calls, and on-line web conferencing. **IBM Connections Meetings Cloud** is a full-featured online meetings Software-as-a-Service in the IBM Cloud. Designed for businesses of all sizes, it enables instant collaboration in the cloud through audio-video conference without any additional cost. With this software, you can more quickly and confidently distribute information, share applications, and give presentations in a security-rich environment. An intuitive, easy-to-use interface helps you to set up and run your own meetings—virtually anytime, from anywhere—with a web browser, a connected camera, and an Internet connection. IBM Connections Meetings Cloud, which is available as a stand-alone product or as part of Connections Cloud S1 and Connections Cloud S2, enables you to:

- Enjoy multi-way video conferencing with your team and experience face-to-face collaboration.
- Share applications, presentations and documents in a variety of formats.
- Use affordable and accessible cloud meeting services to help enhance team productivity, shorten sales cycles, and reduce travel costs.

**IBM Connections Chat Cloud** is a full-featured instant messaging service on the IBM Cloud, designed for businesses of all sizes. Quickly and confidently communicate with your network of peers and subject matter experts. With just one click, you are instantly connected to the person behind the information, helping you meet the ongoing demands of everyday business. IBM Connections Chat Cloud, part of the Connections Cloud family and an integral component of the Connections Cloud S1, Connections Cloud S2, and Social Cloud solutions, provides you and your network with:

- Conversation history and transcripts allow you to find a previous chat or to save chat transcripts for future reference.
- **Mobile Chat** allows you to chat with your contacts anywhere using your mobile device.
- **Web Chat** provides chat capabilities from any browser.

**Messaging:** Person-to-person electronic messaging (email) is foundational to collaboration and is the most natural communication method for many enterprise employees. Messaging in the cloud has elevated the role of email to be a primary entry point and elevated the experience for integrated collaboration. Asynchronous messaging has gone beyond the inbox to allow individuals to connect to and work with anyone using any of the enterprise social services. **IBM Verse** is a powerful email hosting solution that enables users to access their business communications from a laptop or desktop browser or from a mobile device. This email and business messaging experience is based on an innovative user-centric design, including social analytics and advanced search capabilities. IBM Verse helps users quickly find and focus on what content is most important,
empowering them to build stronger working relationships while optimizing business results. IBM Verse, which is available as a stand-alone product, as part of Connections Cloud S1, or as an on-premises solution through Notes Domino, delivers:

- An intuitive email solution that understands the user, based on a user-designed format and on social analytics that have been optimized for desktop and mobile devices.
- More streamlined, less cluttered email accounts, helping users to prioritize and re-focus on the content that matters most.
- A collaborative information exchange using intelligent, built-in security features with engaging social applications for connecting global teams.

Profiles: Profiles provides an online directory of people within an organization. A person’s profile typically contains their name, job role, base location, reporting chain, and details about the IBM Connection Bookmarks, Activities, Communities, and Blogs in which they participate. In addition to basic information, Profiles catalogs skills such as technical expertise, familiarity with foreign languages, and areas of interest.

Profiles can be customized and new fields added. You can use it to find the information you need to form and encourage effective networks. People can be located by criteria such as keywords, names, responsibilities, interests, projects they are part of, expertise, business relationships, tags, or their location.

Use Profiles to make useful connections. Find people with the skills and expertise you need and add them to your network. Follow people when you want to keep up with their updates but don’t want to add them to your network. You can view the latest status updates from the people that you are following and the people in your network by logging in to the Home page and selecting Status Updates on the Updates tab.

Discover who in the organization is working on projects like yours or finding solutions to similar problems, and what resources they are using to simplify their jobs. Find out who your co-workers are, what their interests are, what skills they have, what they are publishing or reading, and get in touch with them. See who they connect to so that you can extend your network further.

Metrics: With the Metrics application, system administrators and designated users can view and interact with server-level metrics that show information across all of IBM Connections and Community owners can view metrics for their own communities.

The Metrics application employs the analytic capabilities of IBM Cognos® Business Intelligence to collect and display statistics that show how people use IBM Connections. There are two levels of metrics:

- **Global metrics** report on overall usage such as the total number of people who logged into IBM Connections last week.
- **Community metrics** report on a particular community such as the number of people who logged into the Sales community last week.
Appendix B: Peer services details

There are many IBM and OEM add-ons and plug-ins available for IBM Connections to enhance and expand the platform. Here are some examples.

- **IBM Digital Workplace Hub**
  - This is an extension to IBM Connections XCC Web Content Management Extension by TimeToAct.
  - Provides a very flexible way to customize the IBM Connections user experience and extend the platform.
  - Available for SaaS and on-premises deployments.
- **IBM Connections Touchpoint**
- **IBM Connections Content Manager**
  - Provides enhanced content management.
- **IBM Connections Social Sidebar**
- **IBM Connections Docs**
  - Provides web-based editors for creating, sharing, and collaboratively authoring word processor, spreadsheet, and presentation documents.
- **IBM Forms Experience Builder**
  - Non-technical users can create sophisticated web applications complete with forms, database, reports, security, and more.
- **AppFusions Integrations for IBM Connections**
  - Suite of rich, ready packages integration connectors making IBM Connections the center of your every workday efforts and collaboration.
- **OnTime for IBM**
  - Provides group calendaring and advance scheduling.
- **Kudos (badges)**
- **Badgeville (badges)**

**Enhanced experiences**: Typically, these are added tools (such as extended authoring tools) and extensions to the existing enterprise social service. They often provide additional capability but by themselves are not fully self-contained experiences. Their utility comes from the additional benefit they provide to existing experiences.

IBM Connections 5.5 can use the Ephox Editors, EditLive!, and Textbox.io optional rich text editors, which you can install to replace the IBM Connections default rich text editor.

**Foundation services**: Provide or enhance the underlying functions of the social service. Typically, these services are used by administrators, with a secondary impact on business users.

- **IBM Connections Compliance** - Full-featured compliance discovery solution for IBM Connections and IBM Sametime™
- **Actiance Vantage Actively Enforce Policies**
- **IBM Connections Onboarding Wizard**
Open and seamless strategy

Strategic partnerships and integration

**Box** – IBM and Box have formed a strategic partnership in which IBM and Box will jointly develop a portfolio of solutions to transform work in the cloud. IBM and Box will deliver these solutions to market internationally. Box provides a modern content management solution that can be combined with best-in-breed social and collaboration solutions from IBM. In 2016 we delivered open, seamless integration with Box. In Verse, you can access Box files and in Connections, you can integrate files and folders into a Community.

**Genband** – IBM’s partnership with unified communications leader Genband provides integrated cloud-based PBX and video services for Connections and Sametime customers. The combined solution, part of Genband’s Kandy.io, delivers voice and video calling on desktop, mobile, and phone devices.
**Actiance** – Meet regulatory compliance and corporate governance requirements and mitigate the risks of social business by capturing, securing, and managing all content created in IBM Connections.

**Cisco** – IBM and Cisco are redefining everyday work with new collaboration solutions coming which can complement IBM Connections Collaboration for existing Cisco customers or those interested in Cisco meeting and calling solutions.
Acknowledgements

The major contributors to this paper are Craig Cunningham and Mike Kudla.