



# The Integrated Digital Customer Experience Architecture:

A Guide for Agile and Innovative Digital Businesses to  
Using Content Services Platforms, Applications, and Components

## Introduction

According to [Gartner](#)<sup>1</sup>, for 58% of CEOs, growth is the number one objective, and 42% say being “digital first” or “digital to the core” is now their company’s digital business posture. To achieve those objectives, customer experience leaders, product owners and enterprise architects are looking for ways to better understand and respond to customers across channels and departments.

Forward-thinking organizations are architecting a bold new [digital business platform](#)<sup>2</sup> vision, sometimes called a [customer engagement hub](#)<sup>3</sup> (CEH) or a digital customer experience [\(DX\) architecture](#)<sup>4</sup>, in order to [bridge silos of customer engagement](#)<sup>5</sup> and improve customer experience. Leading digital businesses, including innovative digital-only businesses like Knab Bank (an online financial institution in the Netherlands)—the firms [Forrester Research classifies](#)<sup>6</sup> in the “advanced” phase of IT transformation maturity—are accomplishing this by creating scalable digital platforms using services that connect their business assets to customers, and unlocking value from their platform ecosystems.

These firms have broken down organizational and technological silos to seamlessly blend product, editorial and service content with customer-specific historical and real-time data in order to personalize the customer experience at the individual customer journey level. They’re improving customer engagement by personalizing down to the individual, not the segment. And they’re building continuous delivery capabilities across their organizations. They’re doing this by focusing on minimally viable products (MVP), and by testing, learning and adapting quickly.

However, while many organizations are in various stages of digital transformation maturity, Forrester has found that only 13% have achieved the vision of being a digital platform business. That means 87% are still working toward that goal. These companies can learn a great deal from peers further along the digital transformation continuum. Vendors like Topdown are facilitating digital transformations with flexible, content services-based applications designed for the customer experience technology architecture of the future. This document describes the type of architecture that these leading digital businesses have built in order to win, serve and retain customers, and it explains how Topdown can be an ideal innovation partner to help your company achieve your own digital transformation vision.

## The Rise of Open Ecosystems and the Four-Tier Engagement Architecture

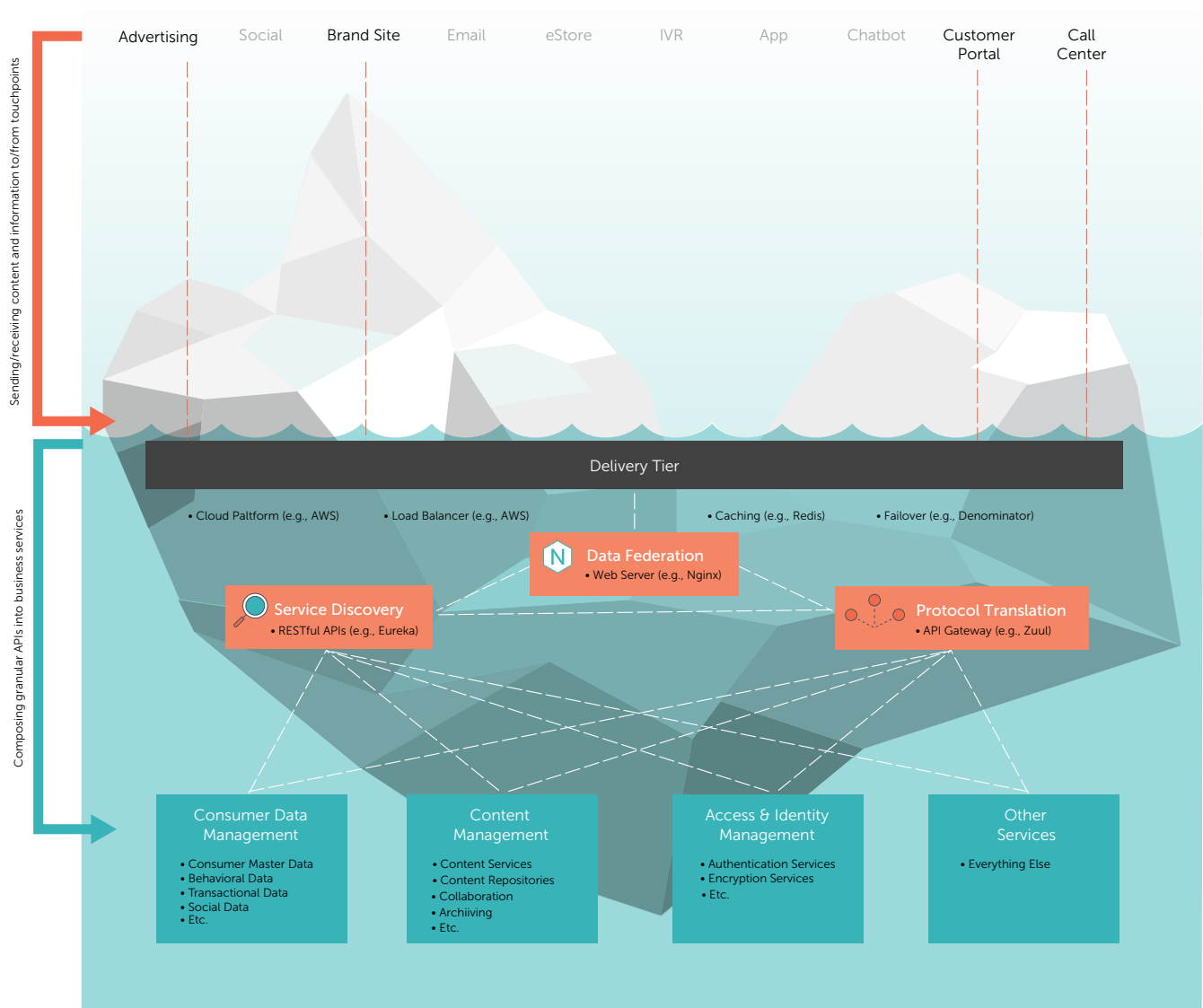
In [Developing Tomorrow’s Digital Experiences](#)<sup>7</sup> (Forrester Research, Inc, December 22, 2017) Forrester analysts explain how “application development and delivery (AD&D) professionals will address their customers’ micro moments by deconstructing today’s digital experiences into granular parts, enabling them to construct highly personalized digital experiences that solve users’ immediate needs.” But how? The simple answer is that businesses need to evolve their digital experience architectures from channel silos to open ecosystems.

In response to this need, Topdown has developed content services and APIs designed to integrate with a modern, four-tier enterprise architecture (see the accompanying infographic).

For the purposes of this paper, we have chosen to organize the layer-one services into categories. This will (hopefully) help you more easily identify what Topdown provides to the rest of the architecture. ➡

# How Topdown Fits into the Four-Tier Engagement Model

You can see in the infographic that the [four-tier architecture](#)<sup>8</sup> includes (layer 1) a base of internal and external services (APIs) that are aggregated (layer 2) by a service registry and an API gateway. The delivery tier (layer 3) and the client layer (layer 4) interact as customers engage with the architecture.



## › Above the surface: client layer

The customer lifecycle serves as the backdrop for customer journeys. As each customer prospect moves from anonymous prospect to known person, they go through a number of seemingly disconnected stages, engaging individual touchpoints to meet needs and solve problems.

## › At the water line: delivery tier

Where company meets customer sits a collection of technologies that package content and data into the formats required by each of the touchpoints. These systems also monitor the customer engagement in real time, learning and adapting in order to increase personalization and improve outcomes.

## › Below the surface: service layers

At the base of the enterprise architecture sits an aggregation tier that ties together underlying services that pertain to systems of record, insight and engagement. These services are internal (i.e., on-premise) and external, third-party services like those from Topdown.

Granular content services, such as those offered by Topdown, can be aggregated into more coarse reusable content services components used to integrate content generation or viewing into other applications and business processes. These services are part of the foundational tier of the above illustration, under Content Management.

## Content Management

Nearly every organization has some kind of content management system (CMS), and most businesses have more than one enterprise content management (ECM) system. In their [Magic Quadrant for Content Services Platforms](#)<sup>9</sup> (Gartner, Inc., October 5, 2017), Gartner redefined the ECM space when they introduced the content services platform (CSP). As analysts Karen A. Hobert, Michael Woodbridge, Joe Mariano and Gavin Tay write in the report, “Gartner’s new definition for this market is as follows:

A content services platform is a set of services and microservices, embodied either as an integrated product suite or as separate applications that share common APIs and repositories, to exploit diverse content types and to serve multiple constituencies and numerous use cases across an organization.”

Many CMS solutions now fall under the broad umbrella of content services platforms. But managing content in CSPs can become cumbersome and can quickly result in multiple, disconnected silos of content. CSPs alone may neither address specific business requirements, nor provide a compelling user experience—at least not out of the box. Enter content services applications and components.

## Content Services Applications and Components

Content services applications (CSAs) provide a user interface and integrate multiple content services (e.g., repository + search + personalization) to solve for specific content use cases (e.g., providing a backend for a chatbot). CSAs are built for the end user and are meant to be used with business process-specific applications. A customer communication management (CCM) example of a CSA would be [correspondence management](#)<sup>10</sup>, where an employee or customer interacts with content in order to create a final communication (e.g., an email) or document (e.g., a product brochure). The employee might engage the correspondence management CSA through a line of business application like a claims management system or a customer relationship management system. The customer would then most likely engage the CCM CSA (or output generated from it) through a different interface, such as a self-service web portal or through a mobile application.

The more modular content services components (CSCs) extend the platform capabilities of other applications, which then expose the new capability to end users. CSCs are typically function-specific, such as capture or search. They are generally consumed by other services (APIs) rather than being presented directly to the end user. An example would be a translation service that can translate a piece of content originally written in English to another language.

Topdown’s new solution INTOUCH® represents the best of both worlds, providing an out-of-the-box CSA for CCM use cases and a variety of easily integrated CSCs that you can consume and compose into business-level APIs to support rapid and agile innovation in order to address additional digital experience use cases.

*Gartner recognized Topdown’s INTOUCH as one of two examples of a CCM content services application.*

## Topdown’s INTOUCH® Platform

In [Extend Content Services Platforms With Applications and Components to Meet Business-Specific Needs](#)<sup>11</sup> (Gartner, Inc., February 2, 2018), Gartner identified INTOUCH and Adobe® Experience Manager as content services applications for CCM that allow users to create, deploy and manage communications directly to clients. Content services applications can also integrate with other software to help extend content management, creation and distribution capabilities to different and emerging use cases beyond traditional customer communications management. INTOUCH offers multiple layers of integration, and thus multiple paths to value and ways to compound the return on investment (ROI).

At the client layer, INTOUCH provides a powerful content services application tailored to traditional CCM use cases, which integrates with the tiers below in order to access data and content services and to deliver customer communications. INTOUCH also includes a rich set of content services component APIs that our customers can use to solve for additional use cases (see below for some examples). These APIs can enhance websites, mobile applications, chatbots, and other content-rich touchpoints, taking advantage of context and adding a deeper level of personalization and engagement.

## Forrester on Strategies for Integration:

"Blur the lines between development and integration. When integration design starts with business design, the resulting approach will often include application development work in addition to integration work. For example, assume that Salesforce is the primary application for one's customer service associates, that orders and inventory are in two other software-as-a-service (SaaS) apps, and that traditional integration keeps basic data in sync across the three. To preclude associates having to swap between the three applications to check order status and inventory, one could create a custom HTML visual component using APIs into the order and inventory apps and then use Salesforce Canvas to embed the component in associates' primary customer view. Scenarios like this illustrate how integration, viewed as business design, leads to a broader, more cohesive approach to seamless business operations on top of one's application silos."

*"A Developer's Guide To Forrester's Strategies For Integration And Digital Business Platforms: Take A Guided Tour Of Forrester's Research On All Aspects Of Integration" Randy Heffner, VP and Principal Analyst (Forrester Research, Inc, December 27, 2017)*

## INTOUCH Content Services

Topdown supports industry-standard open interfaces and fully supports the OpenAPI (formerly Swagger) specification. As INTOUCH is a microservices-based system, this allows for easy, secure and seamless integration with most modern systems, including data virtualization tools, marketing automation platforms, and artificial intelligence software. As below, the INTOUCH customer communication management (CCM) content services application includes many of the content services identified by Forrester in the report [Solve Your Top Content Challenges With Flexible, Modern Platforms](#)<sup>12</sup> (Forrester Research, November 3, 2017).

### Forrester's Complete List of Content Services

	Intelligent content services	Foundational capabilities	Extended services for business and content applications
	<ul style="list-style-type: none"><li>› Cognitive (machine learning and artificial intelligence)</li></ul>	<ul style="list-style-type: none"><li>› Search</li><li>› Capture</li></ul>	<ul style="list-style-type: none"><li>› eDiscovery</li><li>› E-signatures</li><li>› Intranets/portals</li><li>› BPM/digital process automation</li><li>› E-forms</li></ul>
INTOUCH CCM	<ul style="list-style-type: none"><li>› Library and repository services</li><li>› Metadata services</li><li>› Life-cycle management</li><li>› Workflow and task management services</li><li>› Full-text indexing and search</li><li>› Analytics</li><li>› Security</li></ul>	<ul style="list-style-type: none"><li>› APIs and packaged integrations</li><li>› Interoperability and federation services</li></ul>	<ul style="list-style-type: none"><li>› Document management</li><li>› Reviews and team collaboration</li><li>› File sync and share</li><li>› Records management</li><li>› Multichannel capture</li><li>› Reporting</li></ul>

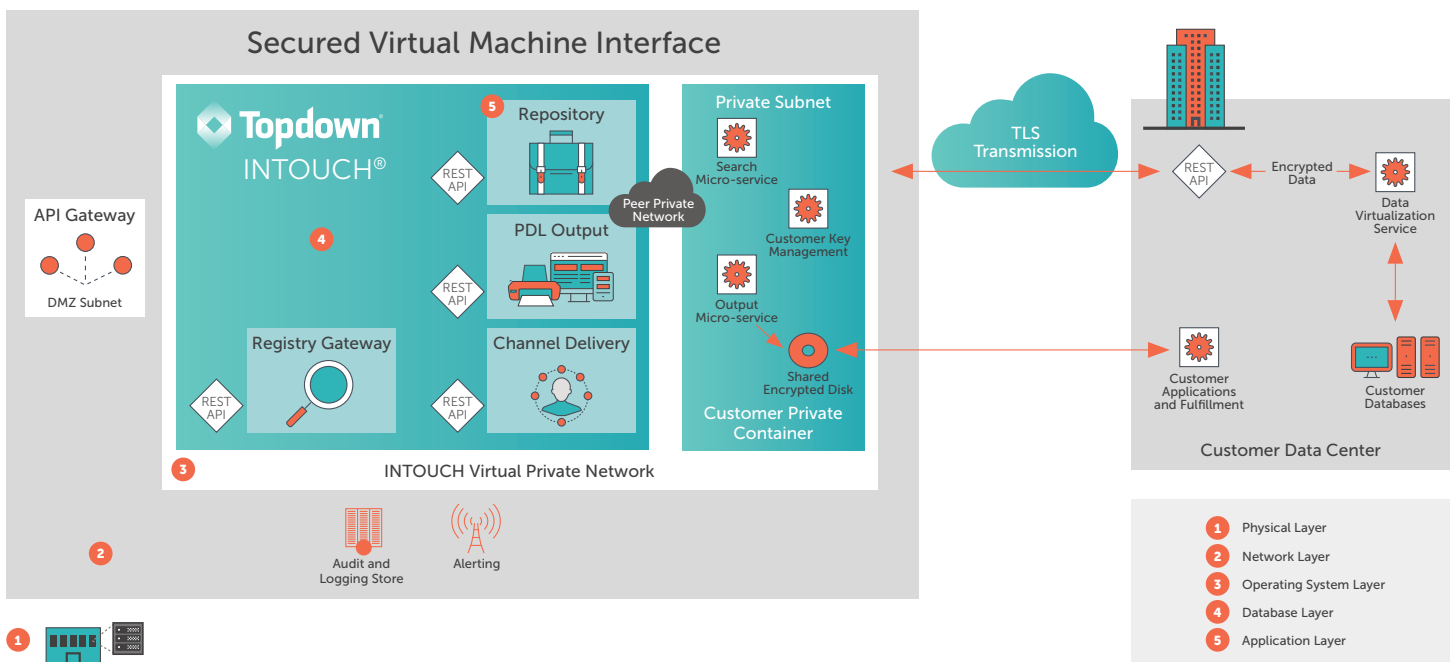
In short, the INTOUCH content services can do a great deal of what enterprise architects and digital product owners need, including:

- › Aggregate content from multiple repositories into a single logical view
- › Create, search and manage tagged, reusable content objects and other assets
- › Extract data from multiple on-premise and cloud-based systems of record
- › Dynamically compose and personalize content objects or components
- › Generate touchpoint-specific proofs (e.g., for email, web, or print)
- › Format content for nearly any delivery tier (e.g., in JSON, HTML, PDF, etc.)
- › Provide a view of historical customer engagements and communications
- › Provide analytics on content use and communication creation

In addition, calls can be made to display or replicate portions of the INTOUCH user interface (UI), including the interactive content creation UI, the business process management (workflow) UI, and the audit trail UI that displays metadata and links to final-format communications stored within INTOUCH or an external document imaging repository.

## The INTOUCH Aggregation Layer

INTOUCH is a collection of microservices sitting in containers on the AWS platform. Inbound calls are securely made via HTTPS, are authenticated through a web server (we use Nginx) in our DMZ and passed to our API gateway (we use Netflix Zuul) in order to look up APIs in our registry (we use Eureka).



## Choose Content Services that Align with Core Use Cases

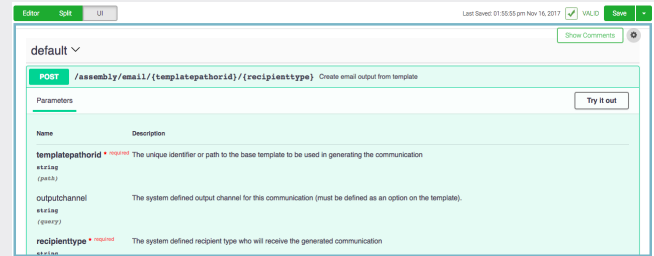
The future of customer experience technology—the one we built INTOUCH to serve—is about the “art of the possible.” What are your core use cases today? What will they be tomorrow or five years from now? We know that typical CCM use cases like managing customer correspondence are not going away and that they still constitute the largest reason why companies need a CCM solution. But your customers’ expectations continue to evolve as new channels and devices emerge and preferences change, so you need to be ready.

For example, many organizations are adding chatbots to their customer self-service offerings these days, or they’re at least considering it. But most organizations are still struggling with how to “feed” their chatbots with relevant, contextual and highly personalized customer content and data. INTOUCH has a CSC for that.

Other organizations are looking to leverage virtual and augmented reality in their customer communications. INTOUCH can help you be ready for that, too. In fact, we’re way out ahead of the curve, poised to help you accelerate your digital business transformation.

## Accelerate Your Digital Business Transformation

Are you currently in the process of planning or implementing your digital business transformation strategy? Will you be taking a content services approach to your new architecture? We should talk! We’re looking for forward-thinking system integrators, digital agencies, and companies looking to build applications that address new content- or customer communication-oriented use cases.



The INTOUCH APIs allow for easy, secure and seamless integration of INTOUCH with most modern systems, including data virtualization tools, marketing automation platforms, and artificial intelligence software.

A major advantage of containerized systems is that INTOUCH can maintain sandbox versions of the software to allow for pre-implementation testing by our customers’ developers. Developers can test against beta and pre-release versions of our APIs directly through our OpenAPI interface. If they have connected their sandboxed environment to test data, they can test their integration from end to end.

LET’S BUILD YOUR IDEAL SOLUTION TOGETHER.

Schedule a FREE one-hour ideation session with us through the [Topdown Content Services web page](#)<sup>13</sup>.

GET STARTED

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