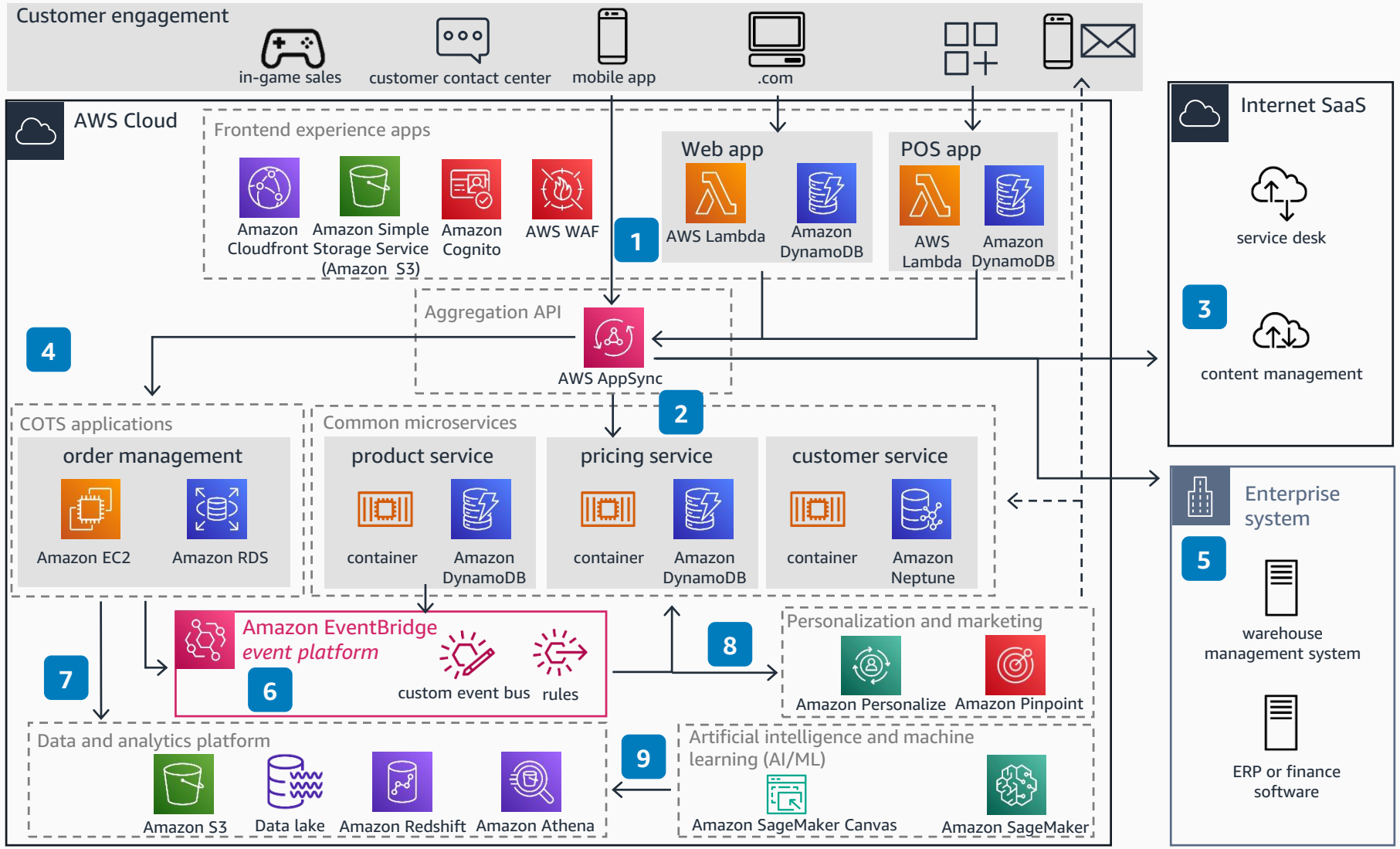
Guidance for Unified Commerce on AWS

This architecture diagram shows the seamless integration of multiple systems to provide a personalized and consistent retail experience to customers—regardless of the touchpoint or fulfillment method—by using AWS services for different layers and to orchestrate between multiple applications and software-as-a-service (SaaS) offerings.



AWS Reference Architecture

1. Frontend applications, or heads, use a common set of microservices and other applications that are abstracted behind an API layer such as **AWS AppSync**, creating headless applications.
2. Common microservices such as **Amazon DynamoDB** and **Amazon Neptune** provide application logic and data to power the frontend experience applications. They usually provide services that differentiate the retailer's offer from that of their competitors.
3. Software-as-a-service (SaaS) applications are used where possible to provide mature evergreen application logic, especially where the service is undifferentiating for the retailer.
4. Traditional commercial off-the-shelf (COTS) applications can also be deployed in AWS services such as **Amazon Elastic Compute Search** (Amazon EC2) and **Amazon Relational Database Service** (Amazon RDS) to provide application services that are not available as SaaS or have not yet been decomposed into microservices.
5. Existing systems of record or location-based systems, such as on-premises warehouse management systems and enterprise resource planning (ERP) or finance software, are also integrated behind the aggregation API.
6. All microservices and applications produce events that are published to **Amazon EventBridge** custom event buses and consumed by decoupled applications by using rules.
7. Application data and events are streamed into a data platform such as **Amazon Simple Storage Service** (Amazon S3) or **Amazon Athena** for real-time and historical analysis and reporting.
8. Personalization for dynamic content and marketing offers is based on real-time events and pushed to the customer on their chosen engagement channels.
9. Machine learning uses the data layer as source for generating forecasts and intelligent insight.