



Contact Centre Technology: CCaaS Platforms, IVR Design and Routing



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Introduction:

Contact centre technology decides whether a customer reaches the right agent or loses the call in a broken menu, yet many platforms grow by patchwork: trunks added without capacity planning, IVR trees nobody can trace, CTI links that fail during peak load and cloud migrations chosen on price alone. This Core Concept course gives technical staff a vendor-neutral method to design, integrate and test CCaaS and on-premise platforms, from SIP trunks and ACD queues to IVR call flows and CRM screen pop. Participants produce a Routing, IVR and Integration Design Pack for a case contact centre.

Course Objectives:

- Map a contact centre platform estate, separating on-premise, hosted and CCaaS components and their dependencies
- Configure SIP trunk, number and session border control requirements for inbound and outbound voice traffic
- Design ACD queues and skills-based and omnichannel routing strategies for voice, chat, email and messaging
- Build and test IVR and voice-bot call flows using DTMF, speech input and VoiceXML-based design patterns
- Specify CTI, CRM, recording and workforce tool integrations with resilience, disaster recovery and payment card data controls
- Produce a Routing, IVR and Integration Design Pack with a CCaaS migration and vendor selection approach

Target Audience:

- Telephony and voice engineers who run trunks, numbers and call switching for customer contact operations
 - Contact centre platform administrators who configure queues, skills, routing and agent desktops
 - Integration developers who connect contact centre platforms to CRM, ticketing and data systems
 - CX technology analysts who translate service requirements into routing and self-service designs
 - IT infrastructure and security staff who support the availability and protection of contact centre systems
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Course Outline:

Day 1: Contact Centre Platform Landscape and Estate Assessment

- Contact Centre Platform Components: PBX, ACD, IVR, CTI, Recording and Reporting Engines
- On-Premise, Hosted and CCaaS Deployment Models Compared by Control, Cost and Scalability
- Voice Signalling Basics: SIP Sessions, Codecs, Jitter, Latency and Packet Loss
- Call Data Identifiers: ANI, DNIS and Caller Line Presentation
- Platform Estate Inventory and Dependency Map Template

Day 2: Telephony Architecture, Queueing and Routing Models

- SIP Trunk Architecture: Private Domain, Public Network Interconnect and Session Border Controllers
- Number Planning: Direct Dial-In Ranges, Toll-Free Numbers and Number Porting Steps
- ACD Distribution Methods: Linear, Uniform, Simultaneous and Weighted Presentation
- Skills-Based Routing Matrix: Skill Levels, Priorities and Overflow Timers
- Omnichannel Routing Engine: Unified Queues for Voice, Chat, Email and Messaging Tasks

Day 3: IVR Call Flow Design and Integration Build

- IVR Menu Architecture: Directed, Open-Ended and Mixed Dialogue Patterns
- Voice Application Standards: VoiceXML, CCXML, SRGS Grammars and SSML Prompts
- Voice-Bot Handoff Points and Speech Recognition Confidence Settings
- CTI Screen Pop and Call Control Events Passed to the Agent Desktop
- CRM and Ticketing Integration via APIs, Webhooks and Customer Lookup Keys

Day 4: Resilience, Security and Operational Data

- Recording, Quality Management and Workforce Tool Integration Interfaces
- Real-Time Wallboards and Historical Interval Reporting Data Models
- High Availability Design: Geo-Redundant Sites, Trunk Failover and Emergency Announcements
- Payment Card Data Handling: DTMF Masking and Pause-and-Resume Recording Controls
- IVR Regression Testing, Load Testing and Call Flow Fault Diagnosis

Day 5: Lab Work: Case Contact Centre Routing and IVR Design

- Case Brief Review: Channel Volumes, Service Lines and Legacy Platform Constraints
 - Lab Build: Routing Strategy and Queue Configuration for the Case Centre
 - Lab Build: IVR and Voice-Bot Call Flow with Test Scripts
 - CCaaS Migration Roadmap and Vendor Selection Scoring Criteria
 - Routing, IVR and Integration Design Pack Presentation and Peer Challenge
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Skills You Will Gain:

- Contact Centre Platform Architecture
- SIP Trunk Configuration
- Skills-Based Routing Design
- IVR Call Flow Scripting
- CTI and CRM Integration
- Contact Centre Resilience Planning
- Payment Card Data Protection in Voice Channels
- CCaaS Vendor Evaluation

Why Attend This Course:

- Leave with a Routing, IVR and Integration Design Pack built and tested in a working lab
- Trace why calls drop, loop or reach the wrong queue and fix the call flow or trunk behind it
- Give business owners a clear, vendor-neutral basis for choosing and moving to a CCaaS platform
- Compare platform and integration practice with technical staff from banking, telecoms, utilities and public services

Conclusion:

A contact centre platform serves customers well only when telephony, routing, self-service and integrations are designed as one system. The course moves from platform components and deployment models, through SIP trunks, numbers, ACD queues and skills-based and omnichannel routing, to IVR and voice-bot call flows, CTI and CRM links, reporting data, resilience and payment card data controls. The final day applies the method in a lab to a case contact centre and produces a Routing, IVR and Integration Design Pack ready for technical review.