



BUSINESS AND CUSTOMER ANALYTICS

Build a Contact Center Capacity Model

Translate contacts, handle time and availability into explicit workload scenarios



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FREE SAMPLE / INTRODUCTION + CHAPTER 1 / EDITION 1.0.0

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About this free sample

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This first edition was prepared with AI assistance. The case studies are fictional teaching examples. Any measured outputs come from the supplied examples, not production customer data. The teaching scope, assumptions and limitations are explained in the chapters. Independent human technical, editorial and assistive-technology reader review is pending. Automated tests and accessibility checks do not establish certification or suitability for every use.

Run examples in a separate working folder using the supplied synthetic data. Review inputs and calculations before adapting the techniques to real operations. Model software, service access, subscriptions, ongoing updates and consulting are not included.

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This free sample contains the introduction and Chapter 1 only. The closing link opens the complete guide. The companion project and worked solutions are supplied with the complete ebook.

Start here

A capacity model translates work into a resource requirement under stated assumptions. It is useful when the arithmetic is transparent and the boundary is clear. A monthly workload calculation can support a staffing conversation, but it cannot promise how quickly a caller will be answered at a busy moment. This book builds the workload calculation carefully and keeps queueing, scheduling and skill constraints visible as separate work.

The worked case is Harbour Help, a fictional support operation. Every organization, quantity, scenario and proposed action is synthetic teaching material. The base month contains 12,000 contacts at eight handling minutes each. A stress scenario raises contacts and handling time while reducing availability. These are assumptions for learning, not forecasts for a real company or recommended industry targets.

You will define the planning horizon, measure workload, separate paid hours from available and handling hours, calculate a normalized FTE requirement and compare it with available capacity. The optional Python tool evaluates named scenarios using the standard library. It does not implement Erlang C, abandonment, interval scheduling, concurrent chat modeling or service-level optimization.

The deliverables are a metric dictionary, a scenario table and a decision note explaining the gap and the next analysis needed. The reasoning requires basic arithmetic. Python 3.10 or later is needed only for the companion. All examples run locally without a paid workforce platform, account or network request. Preserve the original fixture and test alternate assumptions on copies.

Treat FTE as a period-normalized measure, not a roster of people. One FTE in this model contributes a specified number of paid hours during the planning period. Actual staffing depends on contracts, shift lengths, skills, breaks and demand timing. Independent human technical and assistive-technology review of this edition is pending. Use your organization's established workforce and employment processes for real staffing decisions; the book teaches an inspectable planning model.

1. Define the planning question and horizon

Name the decision before the model

Harbour Help asks whether sixteen available monthly FTE appear sufficient for the assumed handled workload. This is a planning question, not a commitment that every caller receives an answer within a target number of seconds. Write that distinction in the first paragraph of the model. Otherwise a sensible aggregate estimate can be reused as an unsupported service-level guarantee.

Define the period and channels. The teaching scenario uses a month and a single sequential handling workload. If email, phone and chat are mixed, verify whether handling minutes mean the same thing. Simultaneous chat sessions can make agent clock time and contact duration different. A channel-specific model may be more useful than forcing incompatible measures into one monthly total.

Keep units consistent

The base input says 160 paid hours per FTE for the same month as 12,000 contacts. Do not divide a weekly workload by monthly paid hours or mix minutes and hours. Write units in field names and on worksheet headings. Dimensional consistency catches many errors before any software is needed.

Specify whether `available_fte` is a forecast, a budget or an actual staffed equivalent. A budgeted position that is vacant does not contribute the same capacity as a trained person on the roster. The tool accepts a number; the analyst must document what that number represents. Available capacity also needs to match the skills and period of the workload being modeled.

Choose the appropriate layer

Official Amazon Connect documentation distinguishes hiring plans from interval-level scheduling plans and allows explicit shrinkage inputs [R1]. This book uses no Amazon service or SDK. The source is useful because it reinforces a practical distinction: long-horizon capacity and short-horizon scheduling are different artifacts. Our simple model belongs to the workload planning layer.

Create a scope note listing included channels, planning period, workload convention, staffing unit and excluded constraints. Include the decision owner and review date. A transparent scope can be brief, but it should travel with the scenario table. A copied screenshot of FTE requirements is easy to misinterpret when separated from its horizon and channel assumptions.

Exercise 1: write the model contract

Write a five-sentence model contract for the teaching month. Include the decision, period, workload channel, FTE unit and one excluded service-level question. Explain why a monthly requirement cannot by itself determine whether the busiest half-hour is adequately staffed.

Continue with the full guide

This free sample ends after the introduction and Chapter 1. The complete guide contains nine teaching chapters, worked exercise solutions, primary references and a separate Python companion project. The full PDF, reflowable EPUB and project files are supplied together.

Use the complete guide to work through the remaining exercises and inspect the supplied examples. The companion code and fictional data are separately MIT licensed; the complete ebook has the single-reader terms described on its product page.

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Primary references

1. **[R1] Create capacity plans using forecasts and scenarios in Connect Customer**
<https://docs.aws.amazon.com/connect/latest/adminguide/capacity-planning-use-forecast.html>
Distinction between hiring and interval-level scheduling plans and explicit shrinkage inputs; no AWS SDK or service is required.