The QuoteServices App Case Study: Overview of the API Gateway Pattern

Douglas C. Schmidt
d.schmidt@vanderbilt.edu
www.dre.vanderbilt.edu/~schmidt

Professor of Computer Science
Institute for Software Integrated Systems
Vanderbilt University
Nashville, Tennessee, USA
Learning Objectives in this Part of the Lesson

- Recognize the API gateway pattern & common realizations of this pattern
Overview of the API Gateway Pattern
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- The API gateway pattern provides a single entry point for back-end APIs & their microservice implementations

See microservices.io/patterns/apigateway.html
Overview of the API Gateway Pattern

- API gateway platforms provide a unified experience for users

*The gateway exposes a single API to clients*

See [blog.knoldus.com/spring-cloud-api-gateway](http://blog.knoldus.com/spring-cloud-api-gateway)
Overview of the API Gateway Pattern

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- Takes all client API requests
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- API gateway platforms provide a unified experience for users, i.e.
  - Takes all client API requests
  - Determines which microservices are designated by the requests
  - Routes requests to the designated microservices
  - Microservices can be either external and/or internal to the system
Pros & Cons of Using an API Gateway
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• Pros of an API gateway

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• Pros of an API gateway
• Simplifies client interaction
Pros & Cons of Using an API Gateway

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• Simplifies client interaction
  • i.e., only a single service API is needed to access all system capabilities
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  • Simplifies client interaction
  • It improves microservice security
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  • Simplifies client interaction
  • It improves microservice security
    • Limits access of external client calls via one public port number
  • Client needn’t know internal system architecture
    • e.g., can’t determine the location of microservice instances
Pros & Cons of Using an API Gateway

• Pros of an API gateway
  • Simplifies client interaction
  • It improves microservice security
  • Cross-cutting concerns only need to be implemented once in the API gateway since all calls will be routed through it
    • e.g., authentication, monitoring, load-balancing, & resiliency
Pros & Cons of Using an API Gateway

- Cons of an API gateway

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- Involves more "moving parts" & associated learning curve
Pros & Cons of Using an API Gateway

• Cons of an API gateway
  • Involves more “moving parts” & associated learning curve
  • Requires additional deployment & orchestration mechanisms
Pros & Cons of Using an API Gateway

• Cons of an API gateway
  • Involves more “moving parts” & associated learning curve
  • Extra levels of indirection can degrade performance

[Diagram showing the flow of external clients to an API gateway and services]

21
Pros & Cons of Using an API Gateway

• Cons of an API gateway
  • Involves more “moving parts” & associated learning curve
  • Extra levels of indirection can degrade performance
  • Compared with a direct-client-to-microservice model

Each microservice has a public endpoint, e.g., with a different TCP port & host address

See direct-client-to-microservice-communication-versus-the-api-gateway-pattern
Pros & Cons of Using an API Gateway

• Cons of an API gateway
  • Involves more “moving parts” & associated learning curve
  • Extra levels of indirection can degrade performance
  • Compared with a direct-client-to-microservice model
    • However, only viable for simple/small deployments

!IT’S SIMPLE!
End of the QuoteServices App Case Study: Overview of the API Gateway Pattern