

1 ПРАКТИЧЕСКОЕ ЗАДАНИЕ SE-18

1.1 РЕАЛИЗОВАТЬ КОМАНДУ SERVER INFO

1.2 НАСТРОИТЬ АРАСНЕ НА ПОРТУ 80 В КАЧЕСТВЕ ПРОКСИ БАЛАНСИРОВЩИКА ВЕБ-ЗАПРОСОВ

1.3 ОБНОВИТЬ КЛИЕНТ ДЛЯ РАБОТЫ С БАЛАНСИРОВЩИКОМ ВЕБ-ЗАПРОСОВ

1.4 ПРОТЕСТИРОВАТЬ РАБОТУ HAZELCAST JPA SECOND LEVEL CACHE В КЛАСТЕРЕ

```
LoadModule proxy_module libexec/apache2/mod_proxy.so
LoadModule proxy_http_module libexec/apache2/mod_proxy_http.so
LoadModule proxy_balancer_module libexec/apache2/mod_proxy_balancer.so
LoadModule lbmethod_byrequests_module
    libexec/apache2/mod_lbmethod_byrequests.so
```

Рис. 1: МОДУЛИ АРАСНЕ ДЛЯ БАЛАНСИРОВКИ НАГРУЗКИ

```
<VirtualHost 127.0.0.1:80>

    ServerName cluster
    ProxyRequests Off
    ProxyPreserveHost On

    <Proxy balancer://mycluster>
        BalancerMember http://127.0.0.1:7070
        BalancerMember http://127.0.0.1:8080
        BalancerMember http://127.0.0.1:9090
        ProxySet lbmethod=byrequests
    </Proxy>

    ProxyPass / balancer://mycluster/
    ProxyPassReverse / balancer://mycluster/

</VirtualHost>
```

Рис. 2: КОНФИГУРАЦИЯ ВИРТУАЛЬНОГО ХОСТА АРАСНЕ

```
java -jar -Dserver.port=7070 ./tm-server.jar  
java -jar -Dserver.port=8080 ./tm-server.jar  
java -jar -Dserver.port=9090 ./tm-server.jar
```

Рис. 3: ЗАПУСК НОД СЕРВЕРА НА СМЕЩЕННЫХ ПОРТАХ

```
server-info  
[server-info]  
HOST: localhost  
PORT: 8080  
[OK]  
  
server-info  
[server-info]  
HOST: localhost  
PORT: 7070  
[OK]  
  
server-info  
[server-info]  
HOST: localhost  
PORT: 9090  
[OK]
```

Рис. 4: ОТВЕТ ОТ КЛАСТЕРА НА ЗАПРОС ИНФОРМАЦИИ О НОДЕ

```
Members {size:3, ver:3} [  
  Member [127.0.0.1]:5701 - be5414ed-4b51-43ac-ad5e-0d9451ee590e  
  Member [127.0.0.1]:5702 - 0ac9971a-e85a-4678-9987-71a993931837  
  Member [127.0.0.1]:5703 - 6ccc7971-6bc1-4e9d-9435-ad838ef7fcb0 this  
]
```

Рис. 5: ЛОГИ ОБЪЕДИНЕНИЯ НОД HAZELCAST В КЛАСТЕР

1.5 СКРИНШОТЫ

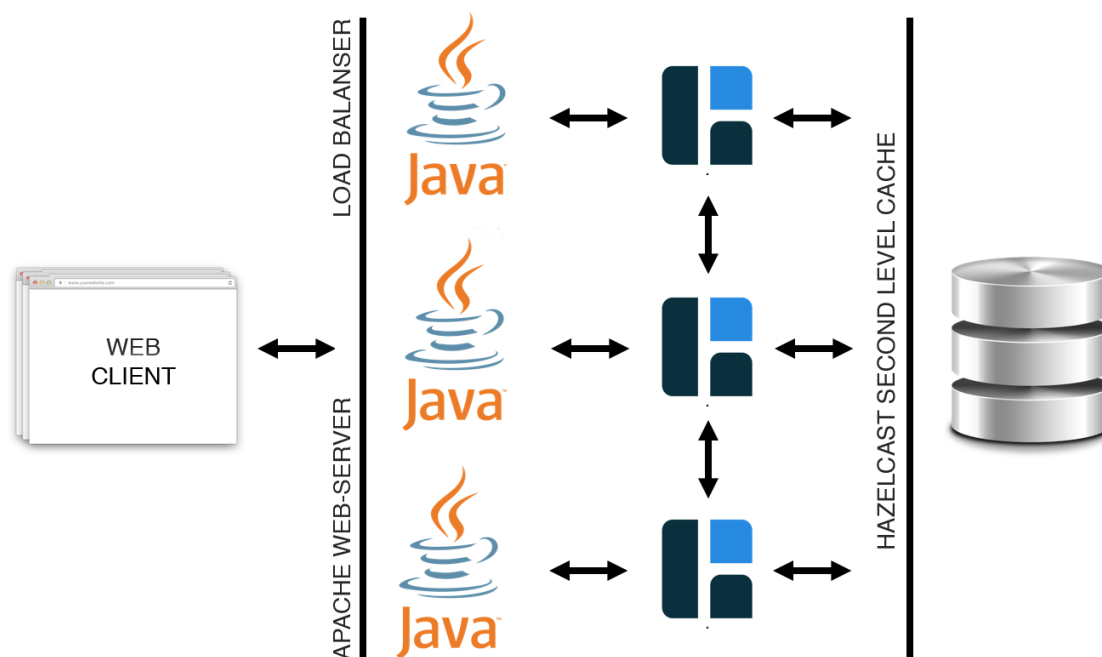
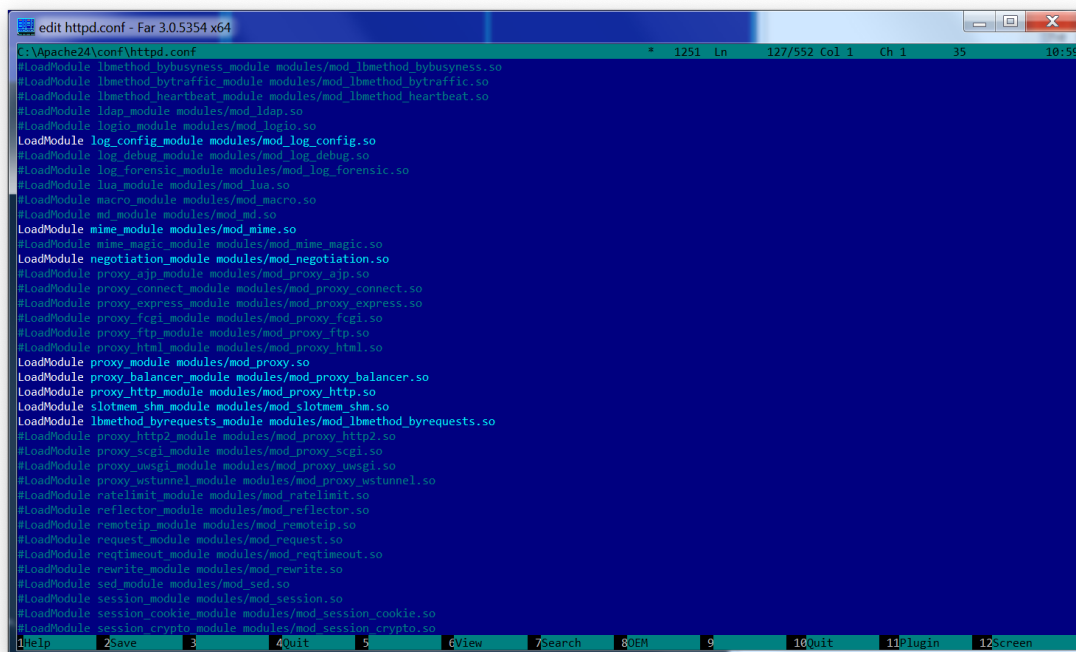


Рис. 6: БАЛАНСИРОВКА SE-МИКРОСЕРВИСА JAX-WS + HAZELCAST

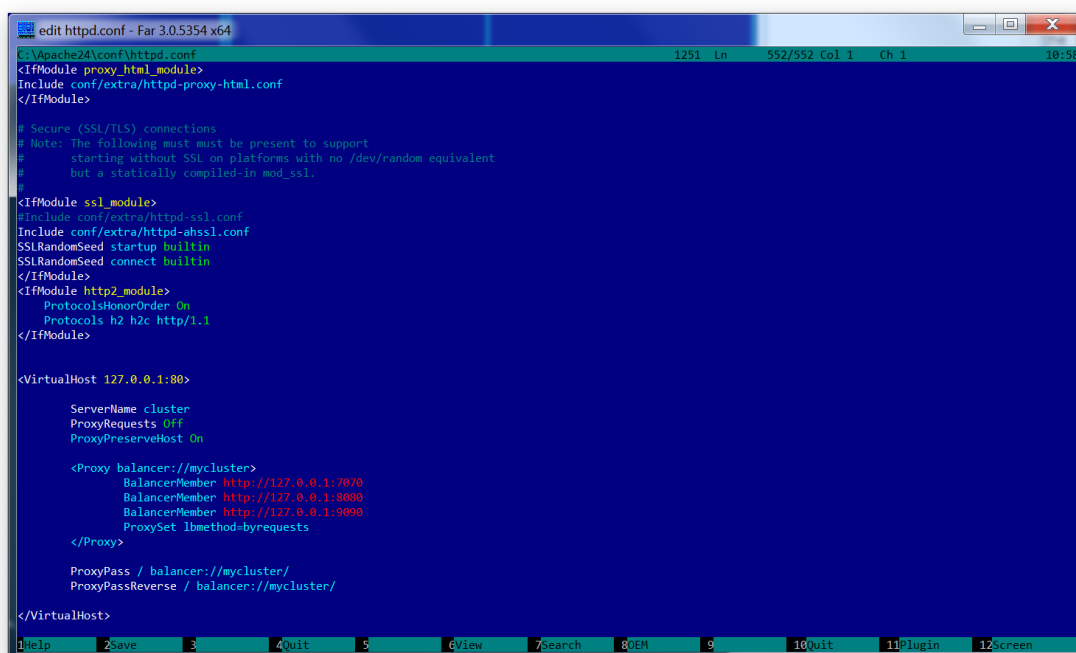


```

C:\Apache24\conf\httpd.conf
#LoadModule lbmethod_bybussyness_module modules/mod_lbmethod_bybussyness.so
#LoadModule lbmethod_bytraffic_module modules/mod_lbmethod_bytraffic.so
#LoadModule lbmethod_heartbeat_module modules/mod_lbmethod_heartbeat.so
#LoadModule ldap_module modules/mod_ldap.so
#LoadModule logio_module modules/mod_logio.so
LoadModule log_config_module modules/mod_log_config.so
#LoadModule log_debug_module modules/mod_log_debug.so
#LoadModule log_forensic_module modules/mod_log_forensic.so
#LoadModule lua_module modules/mod_lua.so
#LoadModule macro_module modules/mod_macro.so
#LoadModule md_module modules/mod_md.so
LoadModule mime_module modules/mod_mime.so
#LoadModule mime_magic_module modules/mod_mime_magic.so
LoadModule negotiation_module modules/mod_negotiation.so
#LoadModule proxy_ajp_module modules/mod_proxy_ajp.so
#LoadModule proxy_connect_module modules/mod_proxy_connect.so
#LoadModule proxy_express_module modules/mod_proxy_express.so
#LoadModule proxy_fcgi_module modules/mod_proxy_fcgi.so
#LoadModule proxy_ftp_module modules/mod_proxy_ftp.so
#LoadModule proxy_html_module modules/mod_proxy_html.so
LoadModule proxy_module modules/mod_proxy.so
LoadModule proxy_balancer_module modules/mod_proxy_balancer.so
LoadModule proxy_http_module modules/mod_proxy_http.so
LoadModule slotmem_shm_module modules/mod_slotmem_shm.so
LoadModule lbmethod_byrequests_module modules/mod_lbmethod_byrequests.so
#LoadModule proxy_http2_module modules/mod_proxy_http2.so
#LoadModule proxy_scgi_module modules/mod_proxy_scgi.so
#LoadModule proxy_uwsgi_module modules/mod_proxy_uwsgi.so
#LoadModule proxy_wstunnel_module modules/mod_proxy_wstunnel.so
#LoadModule ratelimit_module modules/mod_ratelimit.so
#LoadModule reflector_module modules/mod_reflector.so
#LoadModule remoteip_module modules/mod_remoteip.so
#LoadModule request_module modules/mod_request.so
#LoadModule reqtimeout_module modules/mod_reqtimeout.so
#LoadModule rewrite_module modules/mod_rewrite.so
#LoadModule sed_module modules/mod_sed.so
#LoadModule session_module modules/mod_session.so
#LoadModule session_cookie_module modules/mod_session_cookie.so
#LoadModule session_crypto_module modules/mod_session_crypto.so

```

Рис. 7: МОДУЛИ АРАСНЕ ДЛЯ БАЛАНСИРОВЩИКА



```

C:\Apache24\conf\httpd.conf
<IfModule proxy_html_module>
Include conf/extra/httpd-proxy-html.conf
</IfModule>

# Secure (SSL/TLS) connections
# Note: The following must be present to support
#       starting without SSL on platforms with no /dev/random equivalent
#       but a statically compiled-in mod_ssl.

<IfModule ssl_module>
#Include conf/extra/httpd-ssl.conf
Include conf/extra/httpd-ahssl.conf
SSLRandomSeed startup builtin
SSLRandomSeed connect builtin
</IfModule>
<IfModule http2_module>
    ProtocolsHonorOrder On
    Protocols h2 h2c http/1.1
</IfModule>

<VirtualHost 127.0.0.1:80>
    ServerName cluster
    ProxyRequests Off
    ProxyPreserveHost On

    <Proxy balancer://mycluster>
        BalancerMember http://127.0.0.1:7070
        BalancerMember http://127.0.0.1:8080
        BalancerMember http://127.0.0.1:9090
        ProxySet lbmethod=byrequests
    </Proxy>

    ProxyPass / balancer://mycluster/
    ProxyPassReverse / balancer://mycluster/
</VirtualHost>

```

Рис. 8: ВИРТУАЛЬНЫХ ХОСТ АРАСНЕ ДЛЯ БАЛАНСИРОВЩИКА

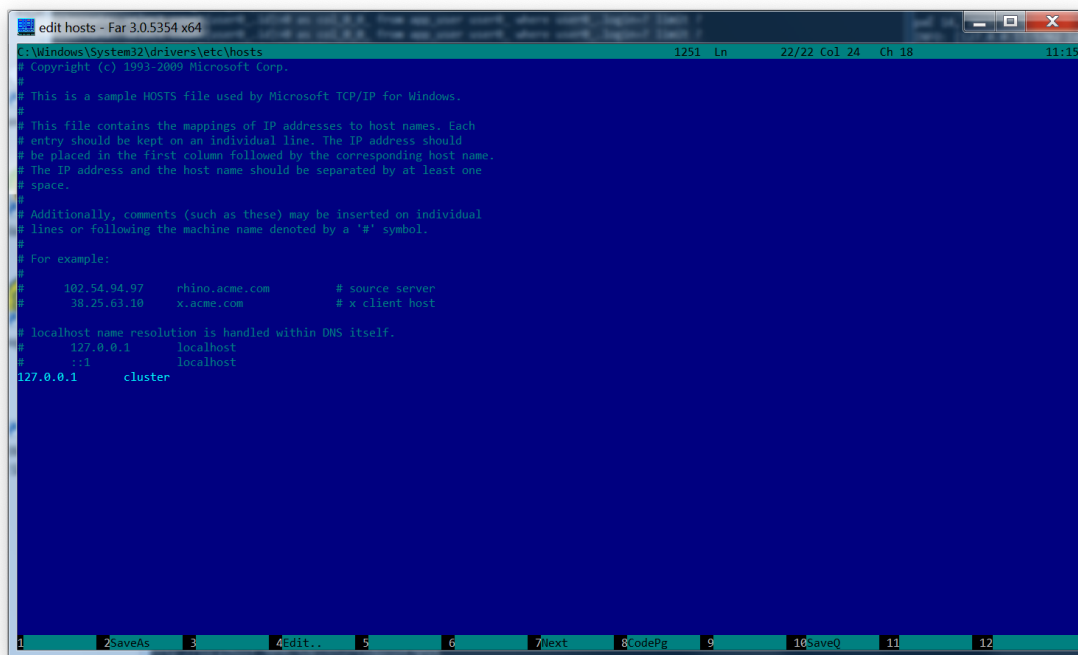


Рис. 9: КОНФИГУРАЦИЯ ХОСТОВ WINDOWS

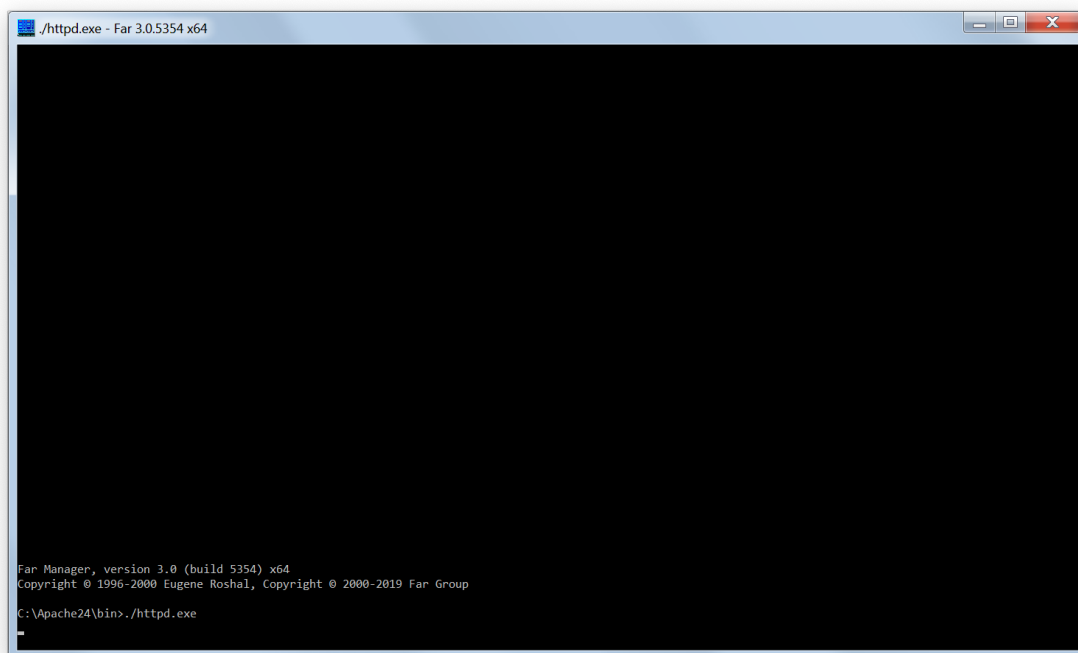


Рис. 10: АПАЧЕ ВЕБ-СЕРВЕР ДЛЯ ОС WINDOWS

```

java -jar -Dserver.port=7070 ./tm-server.jar - Far 3.0.5354 x64

INFO: [127.0.0.1]:5702 [dev] [3.12] Initialized new cluster connection between /127.0.0.1:50911 and /127.0.0.1:5701
prE 14, 2019 11:03:20 AM com.hazelcast.nio.tcp.TcpIpConnector
INFO: [127.0.0.1]:5702 [dev] [3.12] Could not connect to: /127.0.0.1:5703. Reason: SocketException[Connection refused: no further information to address /127.0.0.1:5703]
prE 14, 2019 11:03:20 AM com.hazelcast.cluster.impl.TcpIpJoiner
INFO: [127.0.0.1]:5702 [dev] [3.12] [127.0.0.1]:5703 is added to the blacklist.
prE 14, 2019 11:03:25 AM com.hazelcast.internal.cluster.ClusterService
INFO: [127.0.0.1]:5702 [dev] [3.12]

Members {size:2, ver:2} [
  Member [127.0.0.1]:5701 - 521d5744-bf80-4346-8663-850c7338976a this
  Member [127.0.0.1]:5702 - 8f32bd5a-9f4e-460c-be7a-7a21ce6812cb this
]

prE 14, 2019 11:03:26 AM com.hazelcast.core.LifecycleService
INFO: [127.0.0.1]:5702 [dev] [3.12] [127.0.0.1]:5702 is STARTED
prE 14, 2019 11:03:26 AM org.hibernate.resource.transaction.backend.jdbc.internal.DdlTransactionIsolatorNonJtaImpl getIsolatedConnection
INFO: HHH10001501: Connection obtained from JdbcConnectionAccess [org.hibernate.engine.jdbc.env.internal.JdbcEnvironmentInitiator$ConnectionProviderJdbcConnectionAccess@e60c5a] for (non-JTA) DDL execution was not in auto-commit mode; the Connection 'local transaction' will be committed and the Connection will be set into auto-commit mode.
prE 14, 2019 11:03:27 AM org.hibernate.hql.internal.QueryTranslatorFactoryInitiator initiateService
INFO: HHH000397: Using ASTQueryTranslatorFactory
Hibernate: select count(user0_.id)>0 as col_0_0_ from app_user user0_ where user0_.login=? limit ?
Hibernate: select count(user0_.id)>0 as col_0_0_ from app_user user0_ where user0_.login=? limit ?
http://localhost:7070/ProjectEndpoint?WSDL
http://localhost:7070/TaskEndpoint?WSDL
http://localhost:7070/SessionEndpoint?WSDL
http://localhost:7070/UserEndpoint?WSDL
http://localhost:7070/AdminUserEndpoint?WSDL
prE 14, 2019 11:03:33 AM com.hazelcast.nio.tcp.TcpIpConnection
INFO: [127.0.0.1]:5702 [dev] [3.12] Initialized new cluster connection between /127.0.0.1:5702 and /127.0.0.1:50934
prE 14, 2019 11:03:40 AM com.hazelcast.internal.cluster.ClusterService
INFO: [127.0.0.1]:5702 [dev] [3.12]

Members {size:3, ver:3} [
  Member [127.0.0.1]:5701 - 521d5744-bf80-4346-8663-850c7338976a this
  Member [127.0.0.1]:5702 - 8f32bd5a-9f4e-460c-be7a-7a21ce6812cb this
  Member [127.0.0.1]:5703 - d66a319a-a14d-4530-ab4d-bb92944adca8
]

```

Рис. 11: НОДА СЕРВЕРА ПРИЛОЖЕНИЯ НА ПОРТЕ 7070

```

java -jar -Dserver.port=8080 ./tm-server.jar - Far 3.0.5354 x64

Members {size:1, ver:1} [
  Member [127.0.0.1]:5701 - 521d5744-bf80-4346-8663-850c7338976a this
]

prE 14, 2019 11:03:01 AM com.hazelcast.core.LifecycleService
INFO: [127.0.0.1]:5701 [dev] [3.12] [127.0.0.1]:5701 is STARTED
prE 14, 2019 11:03:02 AM org.hibernate.resource.transaction.backend.jdbc.internal.DdlTransactionIsolatorNonJtaImpl getIsolatedConnection
INFO: HHH10001501: Connection obtained from JdbcConnectionAccess [org.hibernate.engine.jdbc.env.internal.JdbcEnvironmentInitiator$ConnectionProviderJdbcConnectionAccess@5abb7a8f] for (non-JTA) DDL execution was not in auto-commit mode; the Connection 'local transaction' will be committed and the Connection will be set into auto-commit mode.
prE 14, 2019 11:03:02 AM org.hibernate.hql.internal.QueryTranslatorFactoryInitiator initiateService
INFO: HHH000397: Using ASTQueryTranslatorFactory
Hibernate: select count(user0_.id)>0 as col_0_0_ from app_user user0_ where user0_.login=? limit ?
Hibernate: select count(user0_.id)>0 as col_0_0_ from app_user user0_ where user0_.login=? limit ?
http://localhost:8080/ProjectEndpoint?WSDL
http://localhost:8080/TaskEndpoint?WSDL
http://localhost:8080/SessionEndpoint?WSDL
http://localhost:8080/UserEndpoint?WSDL
http://localhost:8080/AdminUserEndpoint?WSDL
prE 14, 2019 11:03:10 AM com.hazelcast.nio.tcp.TcpIpConnection
INFO: [127.0.0.1]:5701 [dev] [3.12] Initialized new cluster connection between /127.0.0.1:5701 and /127.0.0.1:50911
prE 14, 2019 11:03:25 AM com.hazelcast.internal.cluster.ClusterService
INFO: [127.0.0.1]:5701 [dev] [3.12]

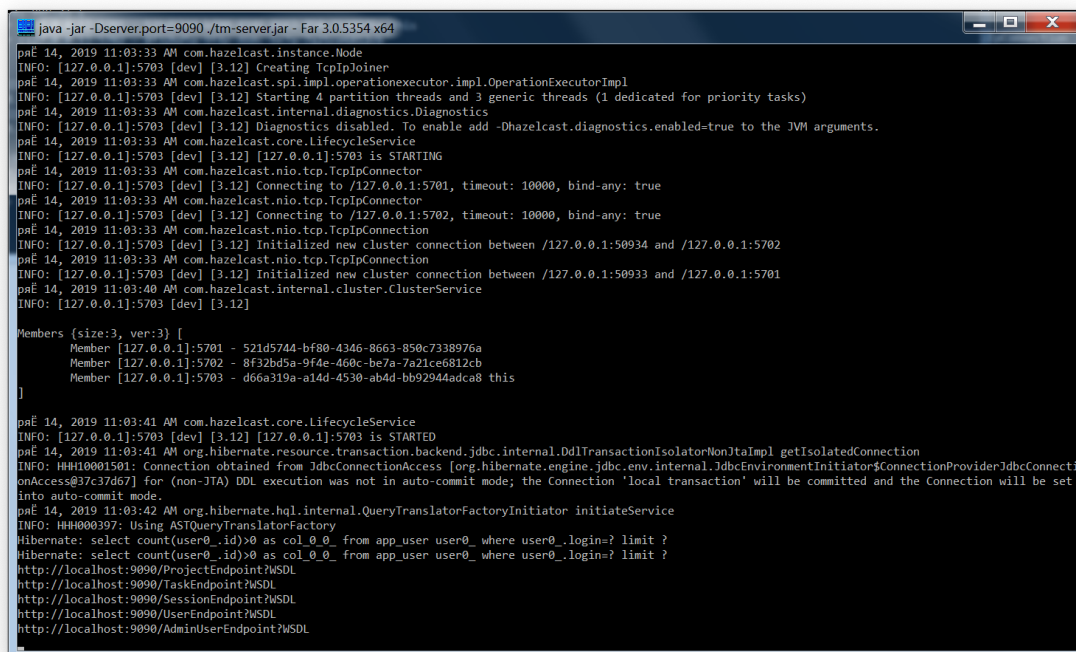
Members {size:2, ver:2} [
  Member [127.0.0.1]:5701 - 521d5744-bf80-4346-8663-850c7338976a this
  Member [127.0.0.1]:5702 - 8f32bd5a-9f4e-460c-be7a-7a21ce6812cb this
]

prE 14, 2019 11:03:33 AM com.hazelcast.nio.tcp.TcpIpConnection
INFO: [127.0.0.1]:5701 [dev] [3.12] Initialized new cluster connection between /127.0.0.1:5701 and /127.0.0.1:50933
prE 14, 2019 11:03:40 AM com.hazelcast.internal.cluster.ClusterService
INFO: [127.0.0.1]:5701 [dev] [3.12]

Members {size:3, ver:3} [
  Member [127.0.0.1]:5701 - 521d5744-bf80-4346-8663-850c7338976a this
  Member [127.0.0.1]:5702 - 8f32bd5a-9f4e-460c-be7a-7a21ce6812cb this
  Member [127.0.0.1]:5703 - d66a319a-a14d-4530-ab4d-bb92944adca8
]

```

Рис. 12: НОДА СЕРВЕРА ПРИЛОЖЕНИЯ НА ПОРТЕ 8080



```

java -jar -Dserver.port=9090 ./tm-server.jar - Far 3.0.5354 x64

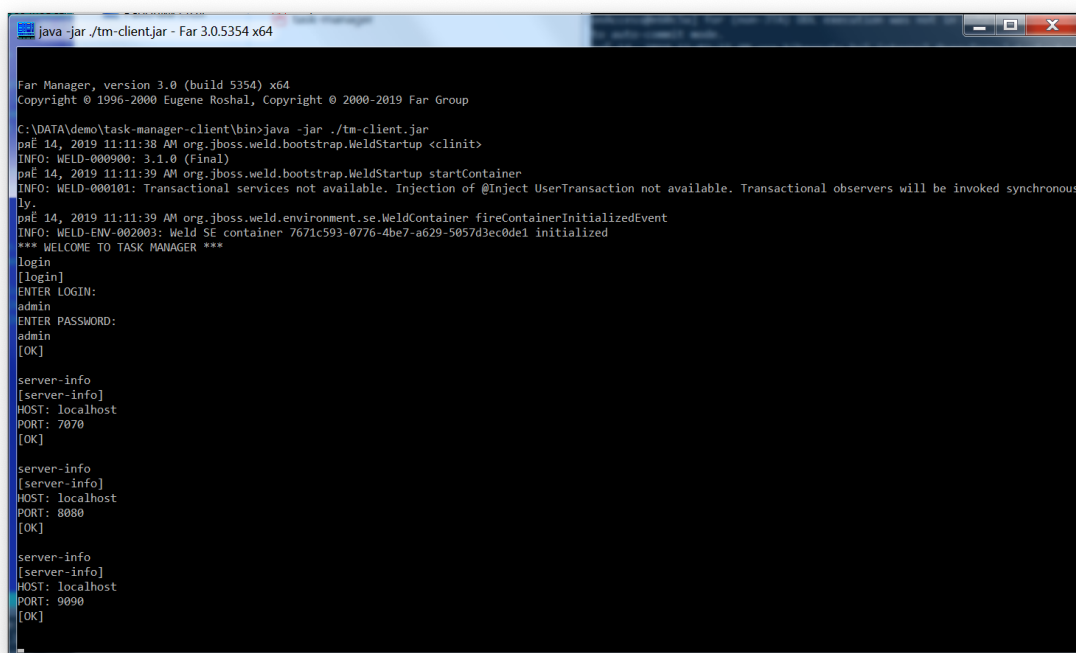
prE 14, 2019 11:03:33 AM com.hazelcast.instance.Node
INFO: [127.0.0.1]:5703 [dev] [3.12] Creating TcpIpJoiner
prE 14, 2019 11:03:33 AM com.hazelcast.spi.impl.operationexecutor.impl.OperationExecutorImpl
INFO: [127.0.0.1]:5703 [dev] [3.12] Starting 4 partition threads and 3 generic threads (1 dedicated for priority tasks)
prE 14, 2019 11:03:33 AM com.hazelcast.internal.diagnostics.Diagnostics
INFO: [127.0.0.1]:5703 [dev] [3.12] Diagnostics disabled. To enable add -Dhazelcast.diagnostics.enabled=true to the JVM arguments.
prE 14, 2019 11:03:33 AM com.hazelcast.core.LifecycleService
INFO: [127.0.0.1]:5703 [dev] [3.12] [127.0.0.1]:5703 is STARTING
prE 14, 2019 11:03:33 AM com.hazelcast.nio.tcp.TcpIpConnector
INFO: [127.0.0.1]:5703 [dev] [3.12] Connecting to /127.0.0.1:5701, timeout: 10000, bind-any: true
prE 14, 2019 11:03:33 AM com.hazelcast.nio.tcp.TcpIpConnector
INFO: [127.0.0.1]:5703 [dev] [3.12] Connecting to /127.0.0.1:5702, timeout: 10000, bind-any: true
prE 14, 2019 11:03:33 AM com.hazelcast.nio.tcp.TcpIpConnector
INFO: [127.0.0.1]:5703 [dev] [3.12] Initialized new cluster connection between /127.0.0.1:50934 and /127.0.0.1:5702
prE 14, 2019 11:03:33 AM com.hazelcast.nio.tcp.TcpIpConnector
INFO: [127.0.0.1]:5703 [dev] [3.12] Initialized new cluster connection between /127.0.0.1:50933 and /127.0.0.1:5701
prE 14, 2019 11:03:40 AM com.hazelcast.internal.cluster.ClusterService
INFO: [127.0.0.1]:5703 [dev] [3.12]

Members (size:3, ver:3) [
    Member [127.0.0.1]:5701 - 521d5744-bf80-4346-8663-850c7338976a
    Member [127.0.0.1]:5702 - 8f32bd5a-9f4e-460c-be7a-7a21ce6812cb
    Member [127.0.0.1]:5703 - d66a319a-a14d-4530-ab4d-bb92944adca8 this
]

prE 14, 2019 11:03:41 AM com.hazelcast.core.LifecycleService
INFO: [127.0.0.1]:5703 [dev] [3.12] [127.0.0.1]:5703 is STARTED
prE 14, 2019 11:03:41 AM org.hibernate.resource.transaction.backend.jdbc.internal.DdlTransactionIsolatorNonJtaImpl getIsolatedConnection
INFO: ###H0001501: Connection obtained from JdbcConnectionAccess [org.hibernate.engine.jdbc.env.internal.JdbcEnvironmentInitiator$ConnectionProviderJdbcConnectionAccess@37c37d67] for (non-JTA) DDL execution was not in auto-commit mode; the Connection 'local transaction' will be committed and the Connection will be set into auto-commit mode.
prE 14, 2019 11:03:42 AM org.hibernate.hql.internal.QueryTranslatorFactoryInitiator initiateService
INFO: ###H000397: Using ASTQueryTranslatorFactory
Hibernate: select count(user0_.id)>0 as col_0_0_ from app_user user0_ where user0_.login=? limit ?
Hibernate: select count(user0_.id)>0 as col_0_0_ from app_user user0_ where user0_.login=? limit ?
http://localhost:9090/ProjectEndpoint?WSDL
http://localhost:9090/SessionEndpoint?WSDL
http://localhost:9090/UserEndpoint?WSDL
http://localhost:9090/AdminUserEndpoint?WSDL

```

Рис. 13: НОДА СЕРВЕРА ПРИЛОЖЕНИЯ НА ПОРТЕ 9090



```

java -jar ./tm-client.jar - Far 3.0.5354 x64

Far Manager, version 3.0 (build 5354) x64
Copyright © 1996-2000 Eugene Roshal, Copyright © 2000-2019 Far Group

C:\DATA\demo\task-manager-client\bin>java -jar ./tm-client.jar
prE 14, 2019 11:11:30 AM org.jboss.weld.bootstrap.WeldStartup <clinit>
INFO: WELD-000900: 3.1.0 (Final)
prE 14, 2019 11:11:30 AM org.jboss.weld.bootstrap.WeldStartup startContainer
INFO: WELD-000101: Transactional services not available. Injection of @Inject UserTransaction not available. Transactional observers will be invoked synchronously.
prE 14, 2019 11:11:30 AM org.jboss.weld.environment.se.WeldContainer fireContainerInitializedEvent
INFO: WELD-ENV-002003: Weld SE container 7671c593-0776-4be7-a629-5057d3ec0de1 initialized
*** WELCOME TO TASK MANAGER ***

login
[login]
ENTER LOGIN:
admin
ENTER PASSWORD:
admin
[OK]

server-info
[server-info]
HOST: localhost
PORT: 7070
[OK]

server-info
[server-info]
HOST: localhost
PORT: 8080
[OK]

server-info
[server-info]
HOST: localhost
PORT: 9090
[OK]

```

Рис. 14: ИНФОРМАЦИЯ О НОДАХ КЛАСТЕРА