

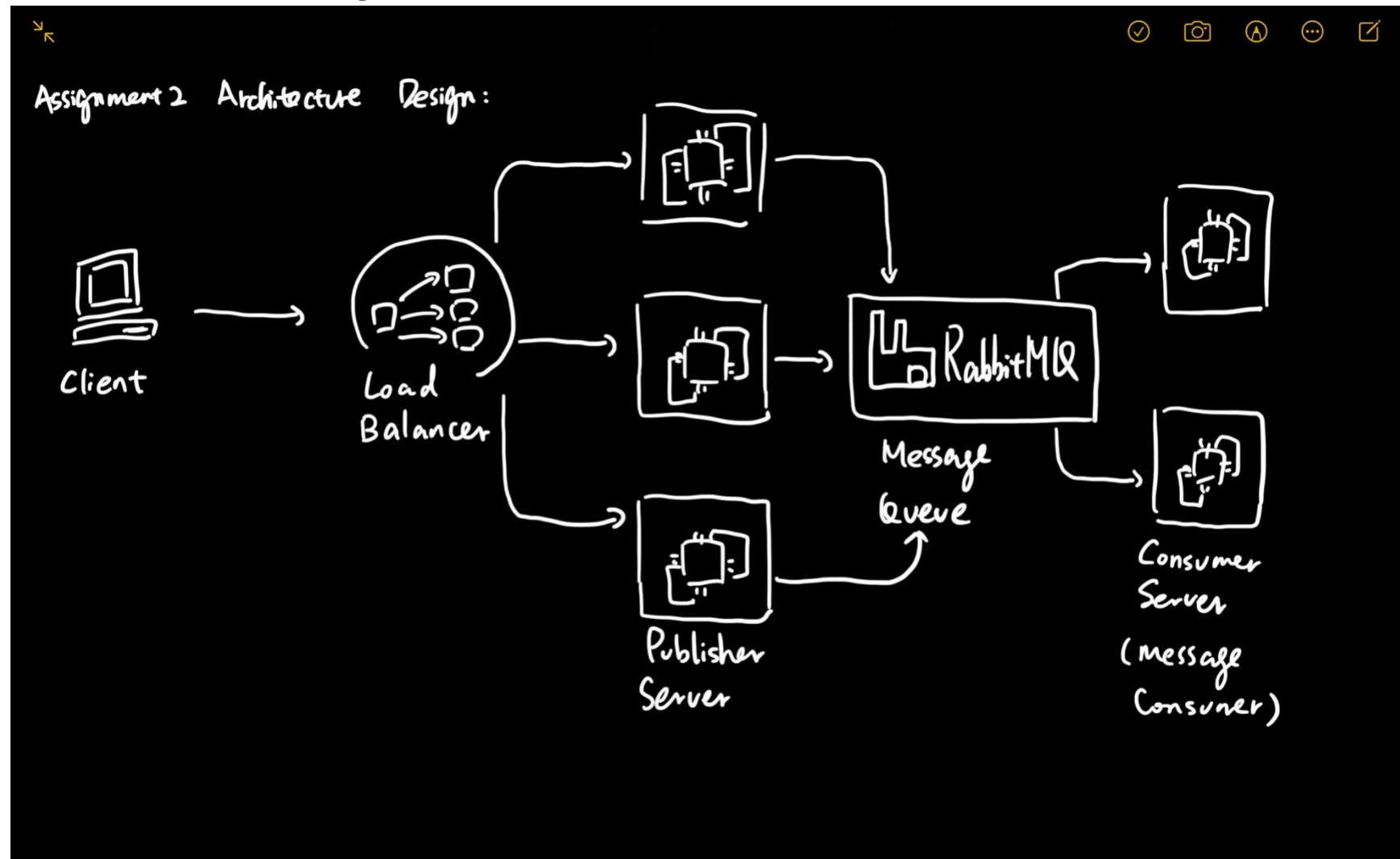
Assignment2: Twinder Server Design Report

CS6650 Distributed System
Zidi Xia

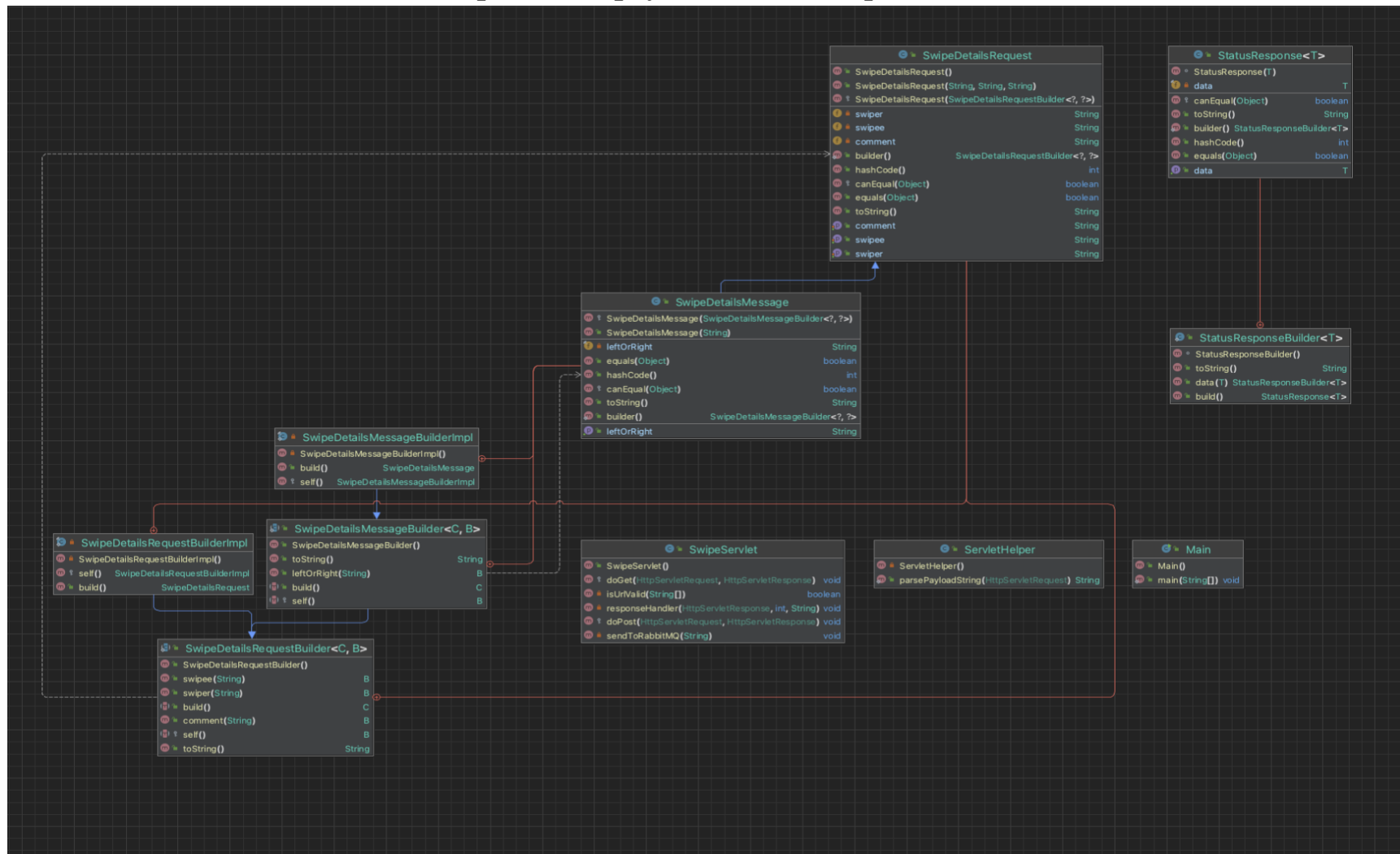
The URL of git repo:

https://github.com/sharonzidi/cs6650_twinder/tree/main/Assignment2

Twinder Architecture Design:

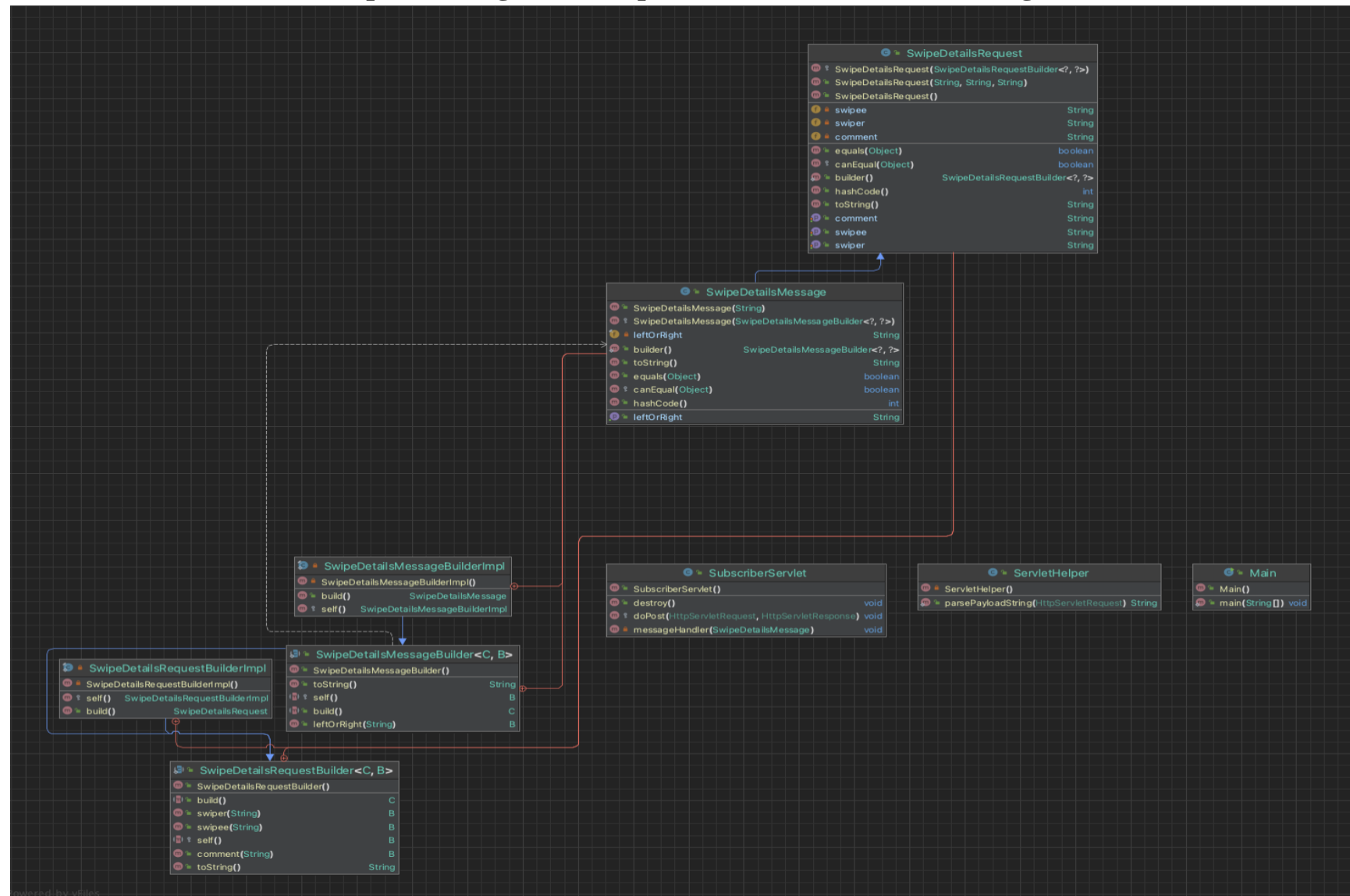


Twinder Publisher Server: send Swipe data as payload to remote queue and return success to the client.



This UML shows the Major Classes, Packages, and Relationships of Twinder Publisher Server.

Twinder Subscriber Server: pull messages off the queue and consume each message.



This UML shows the Major Classes, Packages, and Relationships of Twinder Subscriber Server.

Test run results for a single servlet: number of requests = 50000, number of threads = 150

Consumer Client receiving message from RMO (command lines logs):

```
Received message: {"leftOrRight":"left","swiper":"4428","swipee":"443625","comment":"dubpyiodfteassenlvmnvnfhrygphgkmuwemixeoasbohcofxfwkslzozmyusclqbatmxiwgmppyobrzkvwojajzmhoidoazlhikikrgexcftfncbsnkhkw
SwipeData(userId=1128, numLikes=60, numDislikes=35, likedSwipeIds=[9019, 324425, 603256, 603767, 502632, 732658, 148335, 337421, 11672, 312127, 775485, 719036, 670275, 388169, 409707, 650798, 890412, 188118,
Received message: {"leftOrRight":"right","swiper":"197","swipee":"78194","comment":"vsqvmzuhllooxzblmovagvzblygcidlyyijozuggwelcoqacyiemypuguyngqxuxivvywroqayhbgdohdtyggaaagmthtjmezkcturjhmhrwmcfnrgdxuwjckey
SwipeData(userId=1128, numLikes=60, numDislikes=35, likedSwipeIds=[9019, 324425, 603256, 603767, 502632, 732658, 148335, 337421, 11672, 312127, 775485, 719036, 670275, 388169, 409707, 650798, 890412, 188118,
Received message: {"leftOrRight":"right","swiper":"4823","swipee":"525370","comment":"twczmfgsbzienhxyrnyhtuebRlmfhxwktcbzthwbtdrnscthxzucvwxlsibacxemotrvjehojjmlgmseovwjdxhmchpvmkyhcnilcpapxafpvmqlqbaglvqaem
SwipeData(userId=1128, numLikes=60, numDislikes=35, likedSwipeIds=[9019, 324425, 603256, 603767, 502632, 732658, 148335, 337421, 11672, 312127, 775485, 719036, 670275, 388169, 409707, 650798, 890412, 188118,
Received message: {"leftOrRight":"right","swiper":"359","swipee":"775250","comment":"fidkyervpcjpnzbuexkgnskukokbtuceolcaybiozdaytwuwkfankgbczhqnmwzmmndedahbbktzpklaoiuaqudhvltqysagqdfjfdwgqdfustfjintlnfndtlvuro
SwipeData(userId=1128, numLikes=60, numDislikes=35, likedSwipeIds=[9019, 324425, 603256, 603767, 502632, 732658, 148335, 337421, 11672, 312127, 775485, 719036, 670275, 388169, 409707, 650798, 890412, 188118,
Received message: {"leftOrRight":"left","swiper":"1179","swipee":"477438","comment":"uuiagknctnqgkuiniiajpepgoryvduowngjwdohkhhbgechrhiyactrpalfwcyqpbkxrvrgajfsxhynlxbllpmmkjgfpubyzkhuiakfmkfwughzmsubfwvrjmm
SwipeData(userId=1128, numLikes=60, numDislikes=35, likedSwipeIds=[9019, 324425, 603256, 603767, 502632, 732658, 148335, 337421, 11672, 312127, 775485, 719036, 670275, 388169, 409707, 650798, 890412, 188118,
Received message: {"leftOrRight":"right","swiper":"422","swipee":"154955","comment":"inbzsszqljdedekyeyurepaidrervvaoerhvcflflxtvataqefzmzepsaygbljjngjzjkevtusqacqkfweftqioymlewoekdnldhsxqfsvltrixqxiuqxw
SwipeData(userId=1128, numLikes=60, numDislikes=35, likedSwipeIds=[9019, 324425, 603256, 603767, 502632, 732658, 148335, 337421, 11672, 312127, 775485, 719036, 670275, 388169, 409707, 650798, 890412, 188118,
Received message: {"leftOrRight":"right","swiper":"4530","swipee":"56478","comment":"swnmzarevjcJlrrnzacxqumacjvksadiglqcxpbbekwzyvtegoaxjoszvrurykslmoaimjmikvgwicahydukulzbipticrfmwufjInegyzezbfcniuxugoxrbkc
SwipeData(userId=1128, numLikes=60, numDislikes=35, likedSwipeIds=[9019, 324425, 603256, 603767, 502632, 732658, 148335, 337421, 11672, 312127, 775485, 719036, 670275, 388169, 409707, 650798, 890412, 188118,
Received message: {"leftOrRight":"right","swiper":"4393","swipee":"137959","comment":"spnlsofkokovfwdykejhwhxjpphtemaufmfiftflurhwcljsgirzeypxiwvbwvwrccjgiudjksriobdnafixugtbecceatmvlvyvymqubjzdgmxsmdkz
SwipeData(userId=1128, numLikes=60, numDislikes=35, likedSwipeIds=[9019, 324425, 603256, 603767, 502632, 732658, 148335, 337421, 11672, 312127, 775485, 719036, 670275, 388169, 409707, 650798, 890412, 188118,
Received message: {"leftOrRight":"left","swiper":"2575","swipee":"277983","comment":"ofoespbproagjurikwtjtsfrkyooyxxnrfvrlwkepcsbgvzjqanzlspdkuhpjatknzhaoaajvwmtsvvexcehvpzrcifxmonefnlwbghlinupjycyskrngdngchdqt
SwipeData(userId=1128, numLikes=60, numDislikes=35, likedSwipeIds=[9019, 324425, 603256, 603767, 502632, 732658, 148335, 337421, 11672, 312127, 775485, 719036, 670275, 388169, 409707, 650798, 890412, 188118,
Received message: {"leftOrRight":"left","swiper":"2384","swipee":"657122","comment":"dakmeigwamafxphjdxwextogtjrvvraikcni fvbspfpdfhnlksdrdmujrfzozeqzknlpuzljkyptkklsiqmffrehlwcuipfcddwadqiejedecgqgshedsli
SwipeData(userId=1128, numLikes=60, numDislikes=35, likedSwipeIds=[9019, 324425, 603256, 603767, 502632, 732658, 148335, 337421, 11672, 312127, 775485, 719036, 670275, 388169, 409707, 650798, 890412, 188118,
Received message: {"leftOrRight":"left","swiper":"4745","swipee":"897458","comment":"kdbuwaqdofoqadslrxokhvnidrzwxiejegpuwmdredaiakokgkybrdgwixezdhdkwkpuruiytxcnutsswwqbdkdzjlvdfulhfzotthmtstaxmpdfpwocmrgeeefv
SwipeData(userId=1128, numLikes=60, numDislikes=35, likedSwipeIds=[9019, 324425, 603256, 603767, 502632, 732658, 148335, 337421, 11672, 312127, 775485, 719036, 670275, 388169, 409707, 650798, 890412, 188118,
Received message: {"leftOrRight":"left","swiper":"1474","swipee":"362480","comment":"brawtqbgjwagbdensnjagbutgbitmwnxeztsyrhvbukxtapurehxrdfntnyqscjkpvdvdtvrmzjztcnfonoxiccissujjoagrwgmkyrowrwxgylzyrrhaopgk
SwipeData(userId=1128, numLikes=60, numDislikes=35, likedSwipeIds=[9019, 324425, 603256, 603767, 502632, 732658, 148335, 337421, 11672, 312127, 775485, 719036, 670275, 388169, 409707, 650798, 890412, 188118,
Received message: {"leftOrRight":"left","swiper":"4864","swipee":"995","comment":"uzzyjsajusgwilti fwqtxvsgjtrqrppeymjzxcplpcjwtaxabjfnqdvkllvnfpajevuehyccvupkvumjxtgbtpzri jtcgr yehfbnxjuatgisscryrxcddzgtbxd
SwipeData(userId=1128, numLikes=60, numDislikes=35, likedSwipeIds=[9019, 324425, 603256, 603767, 502632, 732658, 148335, 337421, 11672, 312127, 775485, 719036, 670275, 388169, 409707, 650798, 890412, 188118,
Received message: {"leftOrRight":"right","swiper":"454","swipee":"159253","comment":"vhardsutietxbvbgawoohxkdbfcdtqayfboqlpjtoeltrcrvqdvslclcfsworbpalvpnpxpqagqrhxi djjcfantvnaqefwhhdxvorwgdltpmcuochonuoogapjd
SwipeData(userId=1128, numLikes=60, numDislikes=35, likedSwipeIds=[9019, 324425, 603256, 603767, 502632, 732658, 148335, 337421, 11672, 312127, 775485, 719036, 670275, 388169, 409707, 650798, 890412, 188118,
Received message: {"leftOrRight":"left","swiper":"2927","swipee":"240465","comment":"kaxfgjjckmofrdazwivqfbbfnnauxczbveldltruvlthfmrumbhcxgwcsvstnitwubcrikvxlmagmsirmofzswqfoccxlkaswunbtkmkbrqoddasrynqr
SwipeData(userId=1128, numLikes=60, numDislikes=35, likedSwipeIds=[9019, 324425, 603256, 603767, 502632, 732658, 148335, 337421, 11672, 312127, 775485, 719036, 670275, 388169, 409707, 650798, 890412, 188118,
Received message: {"leftOrRight":"right","swiper":"3108","swipee":"25578","comment":"tnygvxciavjkmjaktekpstgigeethqljkaosdrdmusglkmzrbkmpiwagvcwadrzuizgdloqlfyjznatahmbbrkhpwvgwmi frasuedrswldokiljxvqhsrt
SwipeData(userId=1128, numLikes=60, numDislikes=35, likedSwipeIds=[9019, 324425, 603256, 603767, 502632, 732658, 148335, 337421, 11672, 312127, 775485, 719036, 670275, 388169, 409707, 650798, 890412, 188118,
Received message: {"leftOrRight":"left","swiper":"269","swipee":"94757","comment":"bajdukhaqcjjuInbjagibyevyvraclrynynfafsrgkarrnwxogzfpfnkajsinkfbwiouhlgdshbjwcyorgsi dbqawliczjcmvzpyxvylkjigdlkbouzeewokl
SwipeData(userId=1128, numLikes=60, numDislikes=35, likedSwipeIds=[9019, 324425, 603256, 603767, 502632, 732658, 148335, 337421, 11672, 312127, 775485, 719036, 670275, 388169, 409707, 650798, 890412, 188118,
Received message: {"leftOrRight":"right","swiper":"3167","swipee":"22211","comment":"hptxurogcyvmilev iaqxpdvbadfwgxtmdikajrqipaудlftfjaqypgpgphwnisrrmogymuagjygdvdovdujukiznzplslhsigjgqvmfbtincvmljqsug
SwipeData(userId=1128, numLikes=60, numDislikes=35, likedSwipeIds=[9019, 324425, 603256, 603767, 502632, 732658, 148335, 337421, 11672, 312127, 775485, 719036, 670275, 388169, 409707, 650798, 890412, 188118,
Received message: {"leftOrRight":"right","swiper":"3742","swipee":"973665","comment":"mdycbyvgkmsiiejecctmhqwmkvemgtln cakekbapeozipelfomkottgugrxswyqlqjlthsjekexysyqaczii dovfktyajinyoryxmhnhnybhlwnhnghs
SwipeData(userId=1128, numLikes=60, numDislikes=35, likedSwipeIds=[9019, 324425, 603256, 603767, 502632, 732658, 148335, 337421, 11672, 312127, 775485, 719036, 670275, 388169, 409707, 650798, 890412, 188118,
Received message: {"leftOrRight":"left","swiper":"836","swipee":"188234","comment":"ggmjedxgryshwpkzyfmlzklwjjnwnzhksydxwtqljrurjcywxfxuxsemvvi osxvlcapafwtggbjbrajeyuotywl fzmkaegvgpimwrtkzigsghedavgxvdxaxi
SwipeData(userId=1128, numLikes=60, numDislikes=35, likedSwipeIds=[9019, 324425, 603256, 603767, 502632, 732658, 148335, 337421, 11672, 312127, 775485, 719036, 670275, 388169, 409707, 650798, 890412, 188118,
Received message: {"leftOrRight":"right","swiper":"3601","swipee":"811318","comment":"fqayyrkzaagpgarwiteqoskdmjhpkykalgjpdytkdlzahyodxbauxogtpexqsfzyvqcmxzuvebtvrltjotrzcjganycbeyutafzehfwqubepudwfgzmpobtoxl
SwipeData(userId=1128, numLikes=60, numDislikes=35, likedSwipeIds=[9019, 324425, 603256, 603767, 502632, 732658, 148335, 337421, 11672, 312127, 775485, 719036, 670275, 388169, 409707, 650798, 890412, 188118,
Received message: {"leftOrRight":"left","swiper":"2260","swipee":"492207","comment":"dqmxtjqauibjatzxkovmmyveyykebnpcwkwiehrppfgptgaophenxcntefjsymzsqvqkfdyrycytpurxfzlytcni bsrrouuevaeaozhzagypbrbaeqgvnrkfl
SwipeData(userId=1128, numLikes=60, numDislikes=35, likedSwipeIds=[9019, 324425, 603256, 603767, 502632, 732658, 148335, 337421, 11672, 312127, 775485, 719036, 670275, 388169, 409707, 650798, 890412, 188118,
Received message: {"leftOrRight":"right","swiper":"3009","swipee":"951880","comment":"chxgnxazaxaagqjghqpruwxhqvcsymyazcebpsmdlinxmgtxuigbbxlhaoxcprsspbfdqnhierwyeeghnlalwyflyxfncfihaquaddoengdwrgjdfsm
SwipeData(userId=1128, numLikes=60, numDislikes=35, likedSwipeIds=[9019, 324425, 603256, 603767, 502632, 732658, 148335, 337421, 11672, 312127, 775485, 719036, 670275, 388169, 409707, 650798, 890412, 188118,
Received message: {"leftOrRight":"left","swiper":"3560","swipee":"672586","comment":"ilqakufdhqafjfxrinlxwqoefdaaiyqidgqactvucvrswnmyuezvwsjdubqhfalsvxymulpamtbnysanxfhofuwaeagkmzlfutbguaqirubttkfldtnblsxlry
SwipeData(userId=1128, numLikes=60, numDislikes=35, likedSwipeIds=[9019, 324425, 603256, 603767, 502632, 732658, 148335, 337421, 11672, 312127, 775485, 719036, 670275, 388169, 409707, 650798, 890412, 188118,
```

RMQ Metrix:

Message rates last ten minutes ?



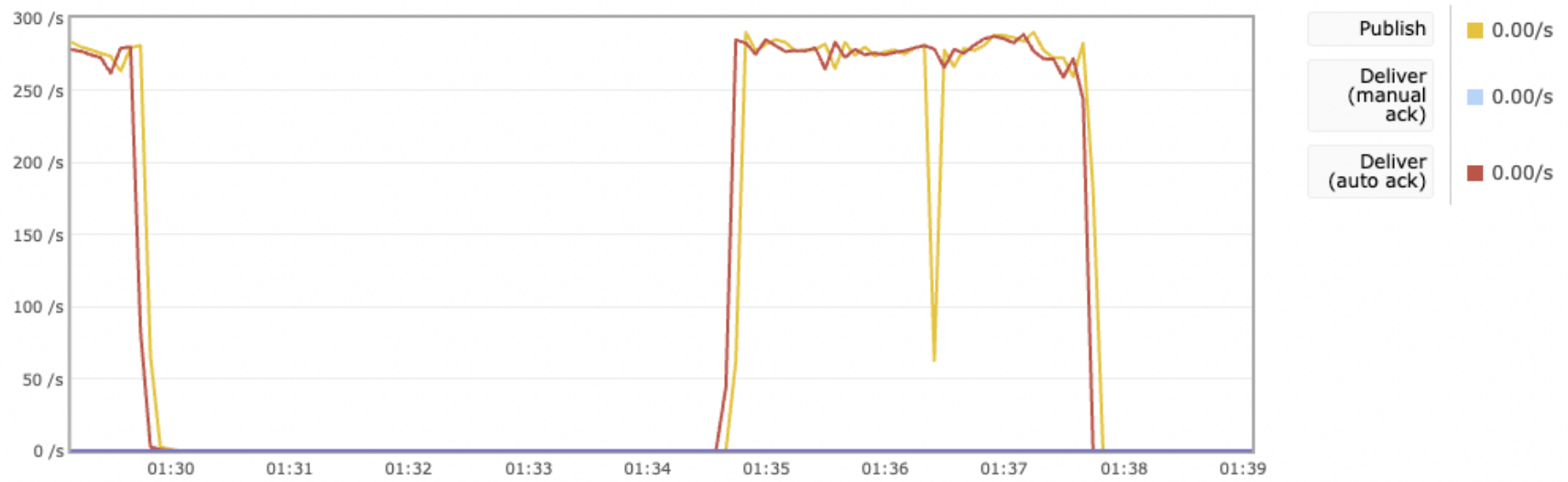
Test run results for a load balanced servlet: number of requests = 50000, number of threads = 150

Consumer Client receiving message from RMO (command lines logs):

```
Received message: {"leftOrRight":"right","swiper":"2617","swipee":"934826","comment":"a1qbyzbcfnbbunttjljetishmxjvdxubnkyhqljllphgncnrhxxkibyzhmfvcrufrwnklbxkwlwpjrmrydqekvypmlzwaopl5drqmfr
SwipeData(userId=151, numLikes=32, numDislikes=12, likedSwipeeIds=[913783, 649147, 376349, 450529, 483467, 732882, 380026, 711862, 972400, 647695, 658684, 635295, 640019, 258540, 870842, 73
Received message: {"leftOrRight":"right","swiper":"322","swipee":"453336","comment":"cegydyfuvuikcdrrjsouihkhmswdbgxpfddpfsvlcqljrziwsuwdgfoizlwkrddchnuntnknpfasgyeozbsvmsildriokhvczymopr
SwipeData(userId=151, numLikes=32, numDislikes=12, likedSwipeeIds=[913783, 649147, 376349, 450529, 483467, 732882, 380026, 711862, 972400, 647695, 658684, 635295, 640019, 258540, 870842, 73
Received message: {"leftOrRight":"right","swiper":"1517","swipee":"984940","comment":"ybbortcncsgllgpnmaistmpifdwhbqfeiraxqirtmxmizianctbkoynxhywbkmgizoshgdbedobkrqpyjywjzyjuaxyidgvzqywy
SwipeData(userId=151, numLikes=32, numDislikes=12, likedSwipeeIds=[913783, 649147, 376349, 450529, 483467, 732882, 380026, 711862, 972400, 647695, 658684, 635295, 640019, 258540, 870842, 73
Received message: {"leftOrRight":"left","swiper":"540","swipee":"230672","comment":"fayhkrzrmikzkrohobuuyaslxqnmgrpufnznncqirwxpbkteogeoflrcbkmtpivuefnwazgajyfibdmteveaaybwqfwomgasustibsdac
SwipeData(userId=151, numLikes=32, numDislikes=12, likedSwipeeIds=[913783, 649147, 376349, 450529, 483467, 732882, 380026, 711862, 972400, 647695, 658684, 635295, 640019, 258540, 870842, 73
Received message: {"leftOrRight":"right","swiper":"3869","swipee":"669826","comment":"eofrjcnqanlyzkrdrfbitanpinmahajafuzzwgtncfudociealsewdumelzkvcopaskyrobinjceytjmojqadvxcvhdp1xqtzokvwnbzg
SwipeData(userId=151, numLikes=32, numDislikes=12, likedSwipeeIds=[913783, 649147, 376349, 450529, 483467, 732882, 380026, 711862, 972400, 647695, 658684, 635295, 640019, 258540, 870842, 73
Received message: {"leftOrRight":"left","swiper":"352","swipee":"769036","comment":"aqhgwguxvcuubcygcxnxjokevoagskzdfjoklzlzdcwllwecwjitfirgxpuxjanlbngpyrrvouiufpgj1bsajijhnhxozfbcukswzp
SwipeData(userId=151, numLikes=32, numDislikes=12, likedSwipeeIds=[913783, 649147, 376349, 450529, 483467, 732882, 380026, 711862, 972400, 647695, 658684, 635295, 640019, 258540, 870842, 73
Received message: {"leftOrRight":"left","swiper":"508","swipee":"778895","comment":"svxdemzectfwnstfdvfofobqattnoyjosgydeulrkzmrgeoccevwqxaqjiocxyvpuoqfrewpxkljgknofewpxicedfofetapwpgyhgiz
SwipeData(userId=151, numLikes=32, numDislikes=12, likedSwipeeIds=[913783, 649147, 376349, 450529, 483467, 732882, 380026, 711862, 972400, 647695, 658684, 635295, 640019, 258540, 870842, 73
Received message: {"leftOrRight":"right","swiper":"3843","swipee":"40767","comment":"jrwccwjppjfljnlkmmwzamuutzzznloniclekuggwqaesbygywcvdcawlkgtyuiroghjkmrgpjpjuukcwjocxcubstgilwactxf1le
SwipeData(userId=151, numLikes=32, numDislikes=12, likedSwipeeIds=[913783, 649147, 376349, 450529, 483467, 732882, 380026, 711862, 972400, 647695, 658684, 635295, 640019, 258540, 870842, 73
Received message: {"leftOrRight":"left","swiper":"3418","swipee":"207599","comment":"ntrkhzenaschpcgkofluntmjgvmvncspzmaugihmjzkczzmpmdwdqouqicyreyqerjxxqarkznkuuwcuaahozredkzxpdebjhntzy
SwipeData(userId=151, numLikes=32, numDislikes=12, likedSwipeeIds=[913783, 649147, 376349, 450529, 483467, 732882, 380026, 711862, 972400, 647695, 658684, 635295, 640019, 258540, 870842, 73
Received message: {"leftOrRight":"right","swiper":"4868","swipee":"809375","comment":"srusjfwniazjdemiwgenifjvibbchuxklidhflhigsrezjckjgrnhqaspwqmf1hcnkfgtaxthznphnguzstdvzvuusxqhbegqnnce
SwipeData(userId=151, numLikes=32, numDislikes=12, likedSwipeeIds=[913783, 649147, 376349, 450529, 483467, 732882, 380026, 711862, 972400, 647695, 658684, 635295, 640019, 258540, 870842, 73
Received message: {"leftOrRight":"left","swiper":"2902","swipee":"121335","comment":"yphrmrvirfsncvqcfvormzdanluuytsyepddutfvghgdfyxppdcpfttbahcgolansjnbzufvyihuytfgnskdfeeuaxeudtaqiwtzoi
SwipeData(userId=151, numLikes=32, numDislikes=12, likedSwipeeIds=[913783, 649147, 376349, 450529, 483467, 732882, 380026, 711862, 972400, 647695, 658684, 635295, 640019, 258540, 870842, 73
Received message: {"leftOrRight":"left","swiper":"794","swipee":"564756","comment":"pejsjbkaaryipnpyjywnyupwwgefijxuncknrlzwalsgtitcappbcknqbiyviianhkqksfzbrtieohks1whonkzamttdtajoarep
SwipeData(userId=151, numLikes=32, numDislikes=12, likedSwipeeIds=[913783, 649147, 376349, 450529, 483467, 732882, 380026, 711862, 972400, 647695, 658684, 635295, 640019, 258540, 870842, 73
Received message: {"leftOrRight":"left","swiper":"1370","swipee":"643091","comment":"tbnhsvebublxvcakixtvofxhansyebhibhdajtoidshtwtfeytuzgjinpaquxehctr1hzhbyrovhqvnlziahybxzrnkvnmvgyrseos
SwipeData(userId=151, numLikes=32, numDislikes=12, likedSwipeeIds=[913783, 649147, 376349, 450529, 483467, 732882, 380026, 711862, 972400, 647695, 658684, 635295, 640019, 258540, 870842, 73
Received message: {"leftOrRight":"right","swiper":"617","swipee":"672120","comment":"yflquhmurmbtjojfaiwbxyuonmeiuydedkazzgqhcxm1qhpeehjuqvaucjwuyrhlhwiwrmfrufmfwyagncbpjgiqlfaprbvcourdw
SwipeData(userId=151, numLikes=32, numDislikes=12, likedSwipeeIds=[913783, 649147, 376349, 450529, 483467, 732882, 380026, 711862, 972400, 647695, 658684, 635295, 640019, 258540, 870842, 73
Received message: {"leftOrRight":"right","swiper":"3212","swipee":"532626","comment":"smwxrpxdxikobzklyyhqroqpygadtqtrrrrgzbhgiickownmvjoschtckzjpdsllygphhvxkygkchsznbuarcswurzlpirrvebmdxka
SwipeData(userId=151, numLikes=32, numDislikes=12, likedSwipeeIds=[913783, 649147, 376349, 450529, 483467, 732882, 380026, 711862, 972400, 647695, 658684, 635295, 640019, 258540, 870842, 73
Received message: {"leftOrRight":"right","swiper":"4443","swipee":"588371","comment":"vgsdtyhablelmucgubdujxlmfpgctcvocflhvfzdvfakhmbzwnxrnkhvbedstbqzvvkshedadkgjsviyyfxhplcxzblcdmuazzm1
SwipeData(userId=151, numLikes=32, numDislikes=12, likedSwipeeIds=[913783, 649147, 376349, 450529, 483467, 732882, 380026, 711862, 972400, 647695, 658684, 635295, 640019, 258540, 870842, 73
Received message: {"leftOrRight":"left","swiper":"3429","swipee":"205531","comment":"nackzaprarusiixqfclraxajkarplrlmxgbuhbvcfxdbnfoycunenvqrwchygxujietdfybsvkkagiyfuvyxtfahvekqvtrqasghmdt
SwipeData(userId=151, numLikes=32, numDislikes=12, likedSwipeeIds=[913783, 649147, 376349, 450529, 483467, 732882, 380026, 711862, 972400, 647695, 658684, 635295, 640019, 258540, 870842, 73
Received message: {"leftOrRight":"left","swiper":"4114","swipee":"187130","comment":"pekjoflfjdaovcparaxtjqwxiiicwyqfmxieiikuggauxpzbhlofpqngmrbnyxlcgwalbjdasolrejjpnntwvbroakpfcptjtfandsdch
SwipeData(userId=151, numLikes=32, numDislikes=12, likedSwipeeIds=[913783, 649147, 376349, 450529, 483467, 732882, 380026, 711862, 972400, 647695, 658684, 635295, 640019, 258540, 870842, 73
```

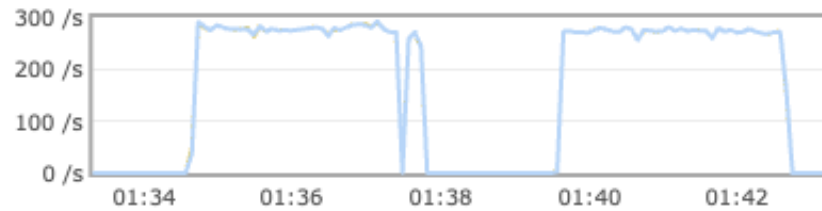
RMQ Metrix:

Message rates **last ten minutes** ?



RMQ Metrix **single servlet** vs **load balanced servlet**:

Connection operations **last ten minutes** ?



Created

0.00/s

Closed

0.00/s

Channel operations **last ten minutes** ?



Created

0.00/s

Closed

0.00/s

Queue operations **last ten minutes** ?



Declared

0.00/s

Created

0.00/s

Deleted

0.00/s