Batch 1 (SD/SE):

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Call | | NT | | |
| 100 | 500 | 1000 |
| NSIM | 1000 | 4.48775/0.141915 | 4.69434/0.148448 | 4.54809/0.143823 |
| 10000 | 4.47478/0.0447478 | 4.49627/0.0449627 | 4.55583/0.0455583 |
| 100000 | 4.53/0.0143251 | 4.55679/0.0144098 | 4.55622/0.014408 |
| 1000000 | 4.52151/0.00452151 | 4.51633/0.00451633 | 4.51429/0.00451429 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Put | | NT | | |
| 100 | 500 | 1000 |
| NSIM | 1000 | 6.06444/0.191775 | 6.10368/0.193015 | 5.92219/0.187276 |
| 10000 | 6.06949/0.0606949 | 6.08976/0.0068976 | 6.0891/0.060891 |
| 100000 | 6.07191/0.0192013 | 6.04876/0.0191279 | 6.05476/0.0191468 |
| 1000000 | 6.05452/0.00605452 | 6.04807/0.00604807 | 6.04834/0.00604834 |

Batch 2 (SD/SE):

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Call | | NT | | |
| 100 | 500 | 1000 |
| NSIM | 1000 | 13.1236/0.415005 | 13.5859/0.429623 | 13.2509/0.419031 |
| 10000 | 13.0576/0.130576 | 13.1157/0.131157 | 13.2352/0.132352 |
| 100000 | 13.183/0.0416881 | 13.2419/0.0418746 | 13.2394/0.0418668 |
| 1000000 | 13.1624/0.0131624 | 13.1506/0.0131506 | 13.1475/0.0131475 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Put | | NT | | |
| 100 | 500 | 1000 |
| NSIM | 1000 | 10.4427/0.330226 | 10.5383/0.333252 | 10.2078/0.322798 |
| 10000 | 10.4674/0.104674 | 10.4952/0.104952 | 10.5148/0.105148 |
| 100000 | 10.4598/0.0330769 | 10.4072/0.0329104 | 10.4278/0.0329756 |
| 1000000 | 10.425/0.010425 | 10.4074/0.0104074 | 10.405/0.010405 |

Batch 4 (SD/SE):

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Call | | NT | | |
| 100 | 500 | 1000 |
| NSIM | 1000 | 361.501/11.4317 | 332.901/10.5272 | 256.593/8.11417 |
| 10000 | 289.941/2.89941 | 355.308/3.55308 | 285.659/2.85659 |
| 100000 | 317.137/1.00288 | 349.316/1.10464 | 321.471/1.01658 |
| 1000000 | 328.003/0.328003 | 381.557/0.381557 | 386.611/0.386611 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Put | | NT | | |
| 100 | 500 | 1000 |
| NSIM | 1000 | 2.52369/0.0798062 | 2.5592/0.0809291 | 2.45224/0.0775467 |
| 10000 | 2.52388/0.0252388 | 2.50846/0.0250846 | 2.48707/0.0248707 |
| 100000 | 2.51422/0.00795065 | 2.46144/0.00778376 | 2.4631/0.00778901 |
| 1000000 | 2.50575/0.00250575 | 2.46135/0.00246135 | 2.45538/0.00245538 |

(b) In general, SD never changes, as it is only dependent to the nature of the option. SE obviously decreases with NSIM as it is inversely proportional to sqrt(NSIM).

We easily see that the smaller SE is, the more accuracy the simulation is. For example, batch 4 call takes long to converge to exact solution as it has much larger SE.