

## Appendix D. Full List of Sample Virtual Worlds

Table 1 lists 180 virtual world products in the market. This list focuses on the identifying virtual world architectures their scalability. This is by no means an exhaustive list. But it covers all typical architectures which are used in all past, current, and developing virtual worlds.

All samples are classified into: game worlds, social worlds, and child's worlds. The proportion of different classes of virtual worlds can truly reflect their respective proportion in the market, as investigated.

Most virtual worlds are investigated through the experience of play. A few virtual worlds have already been out of operation. For those virtual worlds which cannot be directly investigated through play, their architectures are explored by watching user replays on YouTube, reading official game Wikipedia, and collecting the traces from news and forums.

In summary, 6 types of scalability approaches are discovered:

- 1) Shard,
- 2) Shard + Zone + Instance,
- 3) Shard + Instance,
- 4) Zone,
- 5) Instance,

Some virtual worlds of the same type may show slight differences. For example, RuneScape and Wizard101 allow users to freely switch accounts among several shards, while other sharded worlds do not allow it. The description of each type and differences are detailed in the Description field.

The data of Peak User Base are also collected from various sources. The values in this column are only reported peak values during the operation of worlds. Due to different virtual world types, consumption models (fix fee change, monthly subscription, pay-as-you-go, and free-to-play), and business considerations, user bases of different virtual worlds are disclosed in different ways by their respective operators:

- 1) Created Accounts (CA) – active & in-active users of non-monthly subscribed virtual worlds,
- 2) Subscriptions (SS) – active users of monthly subscribed virtual worlds,
- 3) Active Accounts (AA) – active users of non-monthly subscribed virtual worlds,
- 4) Unique Visitor (UV) – active users & potential users of Web-page virtual worlds only,
- 5) Concurrent Users (CU) – active users of any virtual worlds, concurrently online.

As observed, some virtual worlds have only a few concurrent users online for a long period. This may result in wrongly identified architecture. If user population is low on a server, the way of scaling may be veiled (if it is not documented and released). For example, a non-zoning world might show zoning characteristic if a region were fully populated. It can be

observed that all single-seamless worlds only have a very small number of concurrent users. Thus, they are too small to show their real scalability. The best index to validate the architecture of a virtual world is the number of concurrent users. Unfortunately, not all operators disclosed this figure.

Some collections of user population are divided into different regions, e.g., global, North America, and Korea. If the users of a virtual world are mainly from one region, e.g., Asian developed games mainly played by eastern users, only the data of that region is displayed. If the users are evenly distributed in different regions, the data from all regions are displayed, e.g., World of Warcraft. The values ended with (Steam) are the data collected from Steam DB, on Jan. 23, 2016.

Each virtual world links to its (global / regional) official Web site. Please be noted that the URL may change with the change of domain / sub-domain name, leading to access fail. For those virtual worlds out of operation, their landing page points to the Wikipedia page.

Table 1: List of investigated sample virtual worlds.

No.	Name	Scalability Approach	Population <sup>1,2,3</sup>	Release Date	Description on Architecture
<b>Game Worlds</b>					
1	<a href="#">Never Winter Nights (AOL)</a>	Shard	115,000 CA <sup>4</sup>	1991-01-01	The game world of Never Winter Night (AOL) is copied into several parallel servers. On each server, regions do not restrict the number of users. User accounts switching between servers are restricted. Instance system is not found.
2	<a href="#">Nexus: The Kingdom of the Winds</a>	Shard + Instance	12,263 CU in a single shard <sup>85</sup>	1996-01-01	Same as Asheron's Call
3	<a href="#">The Realm Online</a>	Shard + Instance	25,896 SS	1996-01-01	Same as Asheron's Call
4	<a href="#">Furcadia</a>		4500 CU	1996-12-16	Furcadia seems to be run on only one server with no restriction in each zone. But, the user population of this world is too small to show its scalability.
5	<a href="#">Tibia</a>	Shard + Instance	113,299 SS; 64,000 CU	1997-01-07	Same as Asheron's Call
6	<a href="#">Ultima Online</a>	Shard	250,000 SS	1997-09-24	Same as Never Winter Nights
7	<a href="#">Underlight</a>		Few CU	1998-03-01	Underlight seems to be run on only one server with no restriction in each zone. But, the user population of this world is too small to show its scalability.
8	<a href="#">Lineage</a>	Shard + Instance	3,000,000 SS	1998-10-03	Same as Asheron's Call
9	<a href="#">EverQuest</a>	Shard + Zone + Instance	550,000 SS	1999-03-16	The game world is copied into several parallel servers. On each server, each zone only allows limited number of users. Some zones are instanced.
10	<a href="#">Clan Lord</a>	Shard	100 CU	1999-10-18	Same as Never Winter Nights

No.	Name	Scalability Approach	Population <sup>1,2,3</sup>	Release Date	Description on Architecture
11	<a href="#">Asheron's Call</a>	Shard + Instance	120,000SS	1999-11-02	Asheron's Call is run on several parallel shards. On each shard, the game maintains a seamless world with dynamic load balancing technology. It dynamically assigns computing load to different servers for each region according to the player population in that region. Some regions do not restrict the number of users, while others do but they are copied into many instances for different groups. User accounts switching between servers are restricted.
12	<a href="#">Aces High</a>	Instance		2000-05-08	Same as Guild Wars
13	<a href="#">RuneScape</a>	Shard + Instance	1,200,000 SS; 250,000 CU	2001-01-04	Same as Asheron's Call except that users are free to switch between all available servers.
14	<a href="#">Anarchy Online</a>	Shard + Instance	1,100,000 SS; 60,000 AA	2001-06-27	Same as Asheron's Call
15	<a href="#">Dark Age of Camelot</a>	Shard + Instance	250,000 SS	2001-10-09	Same as Asheron's Call
16	<a href="#">The Legend of Mir 2</a>	Shard + Instance	1,000,000 CU;	2001-10-19	Same as Asheron's Call
17	<a href="#">Final Fantasy XI</a>	Shard	550,000 SS	2002-05-16	Same as Never Winter Nights
18	<a href="#">Westward Journey Online II (大话西游 Online II)</a>	Shard + Instance	1,190,000 CU	2002-08-02	Same as Asheron's Call
19	<a href="#">Ragnarok Online</a>	Shard + Instance	750,000 CU	2002-08-31	Same as Asheron's Call
20	<a href="#">Ashen Empires</a>	Shard		2002-09-01	Same as Never Winter Nights
21	<a href="#">Neocron 2</a>	Shard + Instance	6,000 SS; Few CU	2002-09-09	Neocron 2 is supposed to be run on several servers in parallel. (Due to the small number of players for the time being, there is one serve, called Vedeena, for the time being.) Neocron dungeons are not instanced. Neocron uses only one instance zone, Area MC5. In other places, players can meet others.
22	<a href="#">Earth &amp; Beyond</a>	Shard	38,000 SS	2002-09-24	Same as Never Winter Nights
23	<a href="#">Asheron's Call 2</a>	Shard + Instance		2002-11-22	Same as Asheron's Call
24	<a href="#">EUDemons Online</a>	Shard + Instance	570,000 CU	2003-01-01	Same as Asheron's Call
25	<a href="#">Gekkeiju Online</a>	Shard + Instance		2003-01-01	Same as Asheron's Call
26	<a href="#">Entropia Universe</a>	Zone	500,000 CA <sup>29</sup>	2003-01-30	Same as EVE Online
27	<a href="#">A Tale in the Desert</a>	Shard	2,089 SS	2003-02-15	Same as Never Winter Nights
28	<a href="#">Shadowbane</a>	Shard	50,000 SS	2003-03-25	Same as Never Winter Nights

No.	Name	Scalability Approach	Population <sup>1,2,3</sup>	Release Date	Description on Architecture
29	<a href="#">MapleStory</a>	Shard + Instance	250,000 CU (Korea)	2003-04-29	
30	<a href="#">Eve Online</a>	Zone	500,000 SS	2003-05-06	Eve Online is run on single-server mode. In the game world, each zone only allows limited number of users. If a zone is full, newly coming users have to queue.
31	<a href="#">PlanetSide</a>	Shard	60,000 SS	2003-05-20	Same as Asheron's Call
32	<a href="#">Star War Galaxies</a>	Shard + Instance	300,000 SS	2003-06-25	Star War Galaxies is copied into several parallel servers. On each server, some regions do not restrict the number of users, while others do but they are copied into many instances for different groups.
33	<a href="#">World of Legend</a>	Shard + Instance	50,000 CU	2003-07-18	Same as Asheron's Call
34	<a href="#">Istaria: Chronicles of the Gifted</a>	Shard + Instance	36,000 SS	2003-09-09	Same as Asheron's Call
35	<a href="#">Lineage II</a>	Shard + Instance	2,000,000 SS; 14,000,000 CA <sup>87</sup>	2003-10-01	Same as Asheron's Call
36	<a href="#">MU Online (奇迹)</a>	Shard + Instance	400,000 CU	2003-10-06	Same as Asheron's Call
37	<a href="#">Puzzle Pirates</a>	Shard + Instance	4,000,000 CA <sup>35</sup>	2003-12-08	Same as Asheron's Call, multiplayer puzzles are instances to players in Puzzle Pirates
38	<a href="#">Fantasy Westward Journey (梦幻西游)</a>	Shard + Instance	1,000,000 CU <sup>80</sup> 1,330,000 CU <sup>81</sup> 1,500,000 CU <sup>30</sup> 2,320,000 CU <sup>83</sup> 2,560,000 CU <sup>84</sup> 2,600,000 CU <sup>77</sup>	2003-12-18	Same as Asheron's Call
39	<a href="#">Red Stone</a>	Shard + Instance		2004-01-01	Same as Asheron's Call
40	<a href="#">Ran Online</a>	Shard		2004-04-20	Same as Never Winter Nights
41	<a href="#">City of Heroes</a>	Shard + Instance	194,000 SS <sup>17</sup>	2004-04-27	Same as Asheron's Call
42	<a href="#">Mabinogi</a>	Shard + Instance	397,526 $\pm$ 13,681 CA (Steam); 1,229 CU (Steam)	2004-06-24	Same as Asheron's Call
43	<a href="#">The First Myth (封神榜 Online)</a>	Shard + Instance	203,480	2004-08-01	Same as Asheron's Call
44	<a href="#">Knight Online</a>	Shard + Instance	4,000,000 CA <sup>88</sup>	2004-08-17	Same as Asheron's Call
45	<a href="#">Dofus</a>	Shard + Instance	3,000,000 CA <sup>20</sup> , 450,000 AA; 250,000 CU	2004-09-01	Same as Asheron's Call

No.	Name	Scalability Approach	Population <sup>1,2,3</sup>	Release Date	Description on Architecture
46	<a href="#">Pardus</a>	Shard		2004-09-14	Same as Never Winter Nights
47	<a href="#">Ryzom</a>	Shard		2004-09-19	Same as Never Winter Nights
48	<a href="#">The Legend of Mir 3</a>	Shard + Instance	750,000 CU <sup>89</sup>	2004-10-01	Same as Asheron's Call
49	<a href="#">Uncharted Waters Online; Gran Atlas (大航海时代 Online)</a>	Shard + Instance	196,907 $\pm$ 9,632 CA (Steam); 462 CU (Steam)	2004-10-30	Same as Asheron's Call
50	<a href="#">Vendetta Online</a>		Few CU	2004-11-01	Vendetta Online seems to be run on only one server with no restriction in each zone. But, the user population of this world is too small to show its scalability.
51	<a href="#">EverQuest II</a>	Shard + Instance	330,000 SS; 303,325 $\pm$ 12,128 SS (Steam)	2004-11-09	Same as Asheron's Call
52	<a href="#">Conquer Online (征服 Online)</a>	Shard + Instance	92,000 CU	2004-11-14	Same as Asheron's Call
53	<a href="#">World of Warcraft</a>	Shard + Instance	10,000,000 SS; 1,010,395 CU (West); 1,000,000 CU (East); 600,000 CU (China)	2004-11-23	Same as Asheron's Call
54	<a href="#">PlaneShift</a>	Shard		2004-12-24	Same as Never Winter Nights
55	<a href="#">The Matrix Online</a>	Shard	48,000 SS	2005-03-22	Same as Never Winter Nights
56	<a href="#">Zhen Feng Shen (真封神 Online)</a>	Shard + Instance	100,000 CU	2005-04-01	Same as Asheron's Call
57	<a href="#">Guild Wars</a>	Instance	6,000,000 CA <sup>5</sup>	2005-04-26	Guild Wars is not entirely run on multiple parallel shards. Instead, the world will assign each user a unique instance for play. Users can join others' instance to form groups, while group size is limited, except the hub zone (i.e., the town).
58	<a href="#">Shot-Online</a>	Shard + Instance		2005-06-28	Same as Fiesta Online
59	<a href="#">Dungeon and Fighter (地下城与勇士)</a>	Shard + Instance	2,600,000 CU <sup>78</sup> 3,000,000 CU <sup>79</sup>	2005-08	Same as Asheron's Call
60	<a href="#">Cabal Online</a>	Shard + Instance	480,000 CU <sup>16</sup>	2005-10-01	Same as Asheron's Call
61	<a href="#">Silkroad Online</a>	Shard	7,200,000 CA; 100,000 CU <sup>38</sup>	2005-10-01	Same as Never Winter Nights
62	<a href="#">Perfect World (完美世界)</a>	Shard + Instance	300,000 CU <sup>33</sup>	2005-11-25	Same as Asheron's Call
63	<a href="#">Minions of Mirth</a>	Instance		2005-12-01	Same as Guild Wars

No.	Name	Scalability Approach	Population <sup>1,2,3</sup>	Release Date	Description on Architecture
64	<a href="#">Flyff</a>	Shard + Instance	30,000,000 CA	2005-12-25	Same as Asheron's Call
65	<a href="#">Ask Tao</a>	Shard + instance	1,010,000 CU	2006-01-01	Same as Asheron's Call
66	<a href="#">Hero Online</a>	Shard		2006-01-01	Same as Never Winter Nights
67	<a href="#">Granado Espada</a>	Shard + Instance	30,817 ± 3,812 CA (Steam); 265 CU (Steam)	2006-02-14	Same as Asheron's Call
68	<a href="#">RF Online</a>	Shard + Instance		2006-02-21	Same as Asheron's Call
69	<a href="#">Dungeons &amp; Dragons Online</a>	Shard + Instance	109,000 AA; 1,569,448 CA <sup>24</sup>	2006-02-28	Same as Asheron's Call
70	<a href="#">Dynasty Warriors Online (真·三国无双 Online)</a>	Shard + Instance		2006-03-01	Same as Asheron's Call
71	<a href="#">Auto Assault</a>	Shard + Instance	34,000 SS	2006-04-11	Same as Asheron's Call
72	<a href="#">Zhengtū (征途)</a>	Shard + Instance	2,000,000 CU	2006-04-21	Same as Asheron's Call
73	<a href="#">Shaiya</a>	Shard + Instance	520,000 CU	2006-06-18	Same as Asheron's Call
74	<a href="#">Scions of Fate (热血江湖)</a>	Shard + Instance	600,000 CU <sup>46</sup>	2006-11-13	Same as Asheron's Call
75	<a href="#">Dragon Oath (天龙八部)</a>	Shard + Instance	80,000 CU <sup>90</sup> ; 50,000,000 CA <sup>91</sup>	2007-01-01	Same as Asheron's Call
76	<a href="#">Vanguard: Saga of Heroes</a>	Shard + Instance	120,000 SS	2007-01-30	Same as Fiesta Online
77	<a href="#">Puppet Guardian</a>	Shard		2007-04-01	Same as Never Winter Nights
78	<a href="#">The Lord of the Rings Online</a>	Shard + Instance	564,000 SS	2007-04-24	Same as Asheron's Call
79	<a href="#">Champions of Regnum</a>	Shard + Instance	500,000 SS	2007-05-24	Same as Asheron's Call
80	<a href="#">Giant Online (巨人)</a>	Shard + Instance	344,005 CU	2007-06-15	Same as Asheron's Call
81	<a href="#">Empire of Sports</a>	Shard + Instance		2007-08-01	Same as Asheron's Call
82	<a href="#">Twelve Sky</a>	Shard + Instance		2007-10-12	Same as Asheron's Call

No.	Name	Scalability Approach	Population <sup>1,2,3</sup>	Release Date	Description on Architecture
83	<a href="#">Fiesta Online</a>	Shard + Instance	270,545 $\pm$ 11,289 CA (North America, Steam); 117 CU (North America, Steam); 226,857 $\pm$ 10,338 (Global, Steam); 135 CU (Global, Steam)	2007-11-07	Fiesta Online is run on several parallel servers. On each server, the game opens an instance for each player. Players can also form group in dungeons (i.e., group instances)
84	<a href="#">Tabula Rasa</a>	Shard + Instance	125,000 SS	2007-12-02	In Tabula Rasa, there will be different 'versions' of each zone and each 'version' has a limited player capacity. When a version of the zone hits its player limit, a new version of the zone is created for any new players that enter.
85	<a href="#">Elsword</a>	Shard + Instance	853,839 $\pm$ 20,034 CA (Steam); 50,000 CU <sup>28</sup> , 1,834 CU (Steam)	2007-12-27	Same as Asheron's Call
86	<a href="#">Atlantica Online</a>	Shard + Instance	190,100 $\pm$ 9,465 CA (Steam); 52 CU (Steam)	2008-01-01	Same as Asheron's Call
87	<a href="#">Fragoria</a>	Shard + Instance		2008-01-01	Same as Asheron's Call
88	<a href="#">Pirates of the Burning Sea</a>	Shard + Instance	100,000 SS	2008-01-22	Same as Asheron's Call
89	<a href="#">R.O.H.A.N.: Blood Feud</a>	Shard + Instance		2008-03-28	Same as Asheron's Call
90	<a href="#">Wonderland Online</a>	Shard + Instance	50,000 – 60,000 CU <sup>45</sup>	2008-04-09	Same as Asheron's Call
91	<a href="#">Age of Conan: Hyborian Adventures</a>	Shard	159,000 SS <sup>10</sup>	2008-05-20	Same as Never Winter Nights
92	<a href="#">AdventureQuest Worlds (AQ Worlds)</a>	Shard + Zone	10,000,000 CA <sup>9</sup>	2008-06-02	The game world of AQ is copied into several parallel servers. On each server, each zone only allows limited number of users. Instance system is not found in this game.
93	<a href="#">Twelve Sky 2</a>	Shard + Instance	80,000 CU <sup>40</sup>	2008-07-18	Same as Asheron's Call
94	<a href="#">Dead Frontier</a>	Shard + Instance		2008-08-21	Same as Drakensang Online
95	<a href="#">Yu Yan 预言 (Online)</a>	Shard + Instance	380,000 CU	2008-08-28	Same as Asheron's Call
96	<a href="#">Warhammer Online</a>	Shard + Instance	800,000 SS	2008-09-18	Same as Asheron's Call
97	<a href="#">Parallel Kingdom</a>	Instance	1,000,000 CA	2008-11-04	Same as Guild Wars

No.	Name	Scalability Approach	Population <sup>1,2,3</sup>	Release Date	Description on Architecture
98	<a href="#">Aion: The Tower of Eternity</a>	Shard + Instance	4,077,000 SS; 530,000 CU	2008-11-25	Same as Asheron's Call
99	<a href="#">Wizard101</a>	Shard + Instance	50,000,000 CA <sup>44</sup>	2008-12-02	Same as Asheron's Call except that shards (or realms and areas) are free to switch
100	<a href="#">AIKA Online</a>	Shard + Instance		2009-01-01	Same as Asheron's Call
101	<a href="#">Shou Xue Fei Teng (兽血沸腾)</a>	Shard + Instance	400,000 CU	2009-01-01	Same as Asheron's Call
102	<a href="#">Runes of Magic</a>	Shard + Instance	2,000,000 CA <sup>36</sup>	2009-03-19	Same as Asheron's Call
103	<a href="#">Requiem</a>	Shard + Instance	181,436 $\pm$ 9,246 CA (Steam); 305 CU (Steam)	2009-06-19	Same as Asheron's Call
104	<a href="#">Hello Kitty Online</a>	Shard	3,300,000 CA <sup>32</sup>	2009-07-01	Same as Never Winter Nights
105	<a href="#">Champions Online</a>	Instance	586,388 $\pm$ 16,610 CA (Steam); 986 CU (Steam)	2009-09-01	Same as Guild Wars
106	<a href="#">Fallen Earth</a>	Shard + Instance	1,612,133 $\pm$ 27,488 CA (Steam); 930 CU (Steam)	2009-09-22	Same as Asheron's Call
107	<a href="#">Journey to the West (西游记 Online)</a>	Shard + Instance	300,000 CU	2010-01-15	Same as Asheron's Call
108	<a href="#">Vindictus (Mabinogi Heroes)</a>	Shard + Instance	100,000 CU <sup>41</sup>	2010-01-21	Same as Fiesta Online
109	<a href="#">Star Trek Online</a>	Shard + Instance	14,800 AA	2010-02-02	Same as Asheron's Call
110	<a href="#">Dragonica</a>	Shard + Zone + Instance		2010-02-20	Same as EverQuest
111	<a href="#">Dragon Nest</a>	Shard + Zone + instance	200,000,000 CA <sup>21</sup> ; 900,000 CU <sup>22</sup>	2010-05-01	Same as EverQuest
112	<a href="#">Final Fantasy XIV</a>	Shard + Instance	800,000–1,200,000 SS <sup>8</sup>	2010-09-30	Same as Asheron's Call
113	<a href="#">Lego Universe</a>	Shard + Instance	90,000 SS	2010-10-26	Same as Asheron's Call
114	<a href="#">Perpetuum</a>	Zone	6016 SS	2010-11-25	Same as EVE Online
115	<a href="#">DC Universe Online</a>	Shard + Instance	18,000,000 SS <sup>19</sup>	2011-01-11	Same as Asheron's Call
116	<a href="#">TERA</a>	Shard + Instance	1,400,000 CA <sup>86</sup> ; 160,000 CU (Korea)	2011-01-25	Same as Asheron's Call
117	<a href="#">Battlestar Galactica Online</a>	Shard	10,000,000 CA <sup>13</sup>	2011-02-08	Same as Never Winter Nights
118	<a href="#">Rift</a>	Shard + Instance	600,000 SS	2011-03-01	Same as Asheron's Call



No.	Name	Scalability Approach	Population <sup>1,2,3</sup>	Release Date	Description on Architecture
119	<a href="#">Xsyon</a>	Zoned		2011-03-15	Same as Wurm Online
120	<a href="#">Spiral Knights</a>	Instance	3,000,000 CA <sup>39</sup>	2011-04-04	Same as Guild Wars
121	<a href="#">Realm of the Mad God</a>	Shard	2,276,244 ± 32,621 CA (Steam); 2,831 CU (Steam)	2011-06-20	Same as Never Winter Nights
122	<a href="#">Drakensang Online</a>	Shard + Instance	3,000,000 CA <sup>18</sup>	2011-08-01	Drakensang Online is run on multiple parallel shards. On each shard, the game will assign each user a unique instance for play. Users can join others' instance to form groups, while group size is limited, except the hub zone.
123	<a href="#">9Dragons</a>	Shard + Instance		2011-09-17	Same as Asheron's Call
124	<a href="#">Digimon Masters</a>	Shard + Instance		2011-10-20	
125	<a href="#">Star Wars: The Old Republic</a>	Shard + Instance	1,700,000 SS	2011-12-03	Same as Asheron's Call
126	<a href="#">Wakfu</a>	Shard + Instance	916,834 ± 20,757 CA (Steam); 4,026 CU (Steam)	2012-02-29	Tactical turn-based MMORPG
127	<a href="#">Ragnarok Online 2</a>	Shard + Instance	1,047,652 ± 22,183 CA (Steam); 528 CU (Steam)	2012-03-26	Same as Asheron's Call
128	<a href="#">Phantasy Star Online 2</a>	Shard + Instance	3,500,000 CA <sup>34</sup>	2012-06-04	Same as Asheron's Call
129	<a href="#">Blade &amp; Soul</a>	Shard + Instance	1,000,000 AA <sup>15</sup>	2012-06-30	Same as Asheron's Call
130	<a href="#">The Secret World</a>	Shard + Instance	1,000,000 CA <sup>37</sup>	2012-07-03	Same as Asheron's Call
131	<a href="#">Dragon Quest X</a>	Shard + Instance	300,000 AA (Daily) <sup>23</sup>	2012-08-02	Same as Asheron's Call
132	<a href="#">Guild Wars 2</a>	Shard + Instance	3,000,000 CA <sup>6</sup> ; 400,000 CU <sup>7</sup>	2012-08-28	Same as Asheron's Call
133	<a href="#">Wurm Online</a>	Zone	18,936 ± 2,988 CA (Steam); 1,958 CU (Steam)	2012-12-12	Sandbox MMORPG; Each land in Wurm is run by one sever. All servers (i.e., lands) are connected, forming a complete map. The number of users on each land is limited.
134	<a href="#">ArcheAge</a>	Shard + Instance	17,332 SS <sup>12</sup>	2013-01-25	Sandbox MMORPG; Same as Asheron's Call
135	<a href="#">Marvel Heroes</a>	Instance	3,613,748 ± 40,996 CA (Steam); 8,759 CU (Steam)	2013-06-04	Same as Guild Wars
136	<a href="#">Neverwinter</a>	Shard + Instance		2013-06-20	Same as
137	<a href="#">Age of Wulin</a>	Shard + Instance	28,880,000 CA <sup>11</sup>	2013-07-18	Same as Asheron's Call

No.	Name	Scalability Approach	Population <sup>1,2,3</sup>	Release Date	Description on Architecture
138	Defiance	Shard + Zone + Instance	2,851,741 $\pm$ 36,472 CA (Steam); 11,263 CU (Steam)	2013-08-02	Same as EverQuest, Story mode +multi-team
139	<a href="#">Darkfall Unholy Wars</a>	Shard + Instance		2013-08-16	Same as Asheron's Call
140	<a href="#">Echo of Soul</a>	Shard + Instance	433,541 $\pm$ 14,287 CA (Steam); 2,730 CU (Steam)	2013-09-11	Same as Asheron's Call
141	<a href="#">Aura Kingdom</a>	Shard + Instance	1,791,670 $\pm$ 29,393 CA (Steam); 2,165 CU (Steam)	2013-12-23	Same as Asheron's Call
142	<a href="#">Black Desert</a>	Shard + Instance	1,500,000 CA <sup>14</sup>	2014-01-01	Same as Asheron's Call
143	<a href="#">The Elder Scrolls Online</a>	Instance	772,374 SS <sup>25</sup>	2014-04-04	The Elder Scrolls Online adopts MeagServer technology <sup>26,27</sup> to realize dynamic switch between single and instance mode. When the player population is small, the game presents a single, seamless world. When some region servers are overloaded, copies of the region will be dynamically created and merged, with the fluctuation of player population.
144	<a href="#">WildStar</a>	Shard + Instance	40,000–50,000 CU <sup>42,43</sup>	2014-06-03	Same as Asheron's Call
145	<a href="#">Firefall</a>	Shard + Instance	2,686,023 $\pm$ 35,408 CA (Steam); 13,397 CU (Steam)	2014-07-29	Same as Asheron's Call
146	<a href="#">Elite: Dangerous</a>	Zone	694,297 $\pm$ 18,336 SS (Steam)	2014-12-16	Same as EVE Online
147	<a href="#">H1Z1</a>	Shard	2,151,748 CA <sup>31</sup>	2015-01-15	Same as Never Winter Nights
148	<a href="#">Trove</a>	Instance	4,604,593 $\pm$ 46,188 CA (Steam); 58,949 CU (Steam)	2015-07-09	Away from the hub, players in Trove will enter their own instanced world zones or join other's dungeon play. Clubs also have their respective Club world.
149	<a href="#">Shroud of the Avatar: Forsaken Virtues</a>	Instance		2016-01-01	Same as Guild Wars
<b>Social Worlds</b>					
150	<a href="#">Moove</a>	Zone	1,546,464 CA <sup>55</sup>	1994-01-01	Same as Asheron's Calltive Worlds
151	<a href="#">Active Worlds</a>	Zone	1,000,000 AA <sup>47</sup>	1995-06-28	In Active worlds, each world (i.e., a region) is run by a world server. The number of concurrent users a world can support depends on the capacity of that particular world server, mainly on CPU power, memory, and bandwidth. If a world is full of users, others must queue and wait.

No.	Name	Scalability Approach	Population <sup>1,2,3</sup>	Release Date	Description on Architecture
152	<a href="#">Habbo Hotel</a>	Shard + Zone	178,000,000 CA; 15,000,000 UV <sup>48</sup> ; 100,000 CU <sup>49</sup>	2001-09-26	Habbo Hotel shards are geographically distributed all over the world. On each regional shard, the world is divided into many zones (i.e., rooms) which only allow limited number concurrent access.
153	<a href="#">WeeWorld</a>	Zone	60,000,000 CA <sup>65</sup> ; 2,100,000 UV (Monthly) <sup>66</sup>	2002-01-01	Same as Asheron's Calltive Worlds
154	<a href="#">The Sims Online</a>	Zone	105,000 SS	2002-12-17	Same as Asheron's Calltive Worlds
155	<a href="#">There</a>	Zone	170,000 AA	2003-01-09	Same as Asheron's Calltive Worlds
156	<a href="#">Second Life</a>	Zone	800,000 AA	2003-06-23	Same as Asheron's Calltive Worlds
157	<a href="#">Kaneva</a>	Zone	5,000,000 CA; 300 CU <sup>53</sup>	2004-01-01	Same as Asheron's Calltive Worlds
158	<a href="#">IMUV</a>	Zone	20,000,000 CA <sup>56</sup> ; 800,000 AA (Monthly) <sup>57</sup>	2004-04-15	Same as Asheron's Calltive Worlds
159	<a href="#">Rise: The Vieneo Province</a>		Few CU	2006-01-01	Rise seems to be run on only one server with no restriction in each zone. But, the user population of this world is too small to show its scalability.
160	<a href="#">Utherverse</a>	Instance	1,500,000 CA <sup>59</sup>	2006-01-01	Same as Onverse
161	<a href="#">Meez</a>	Zone	3,000,000 UV (Monthly) <sup>54</sup>	2006-03-28	Same as Asheron's Calltive Worlds
162	<a href="#">ySide</a>	Zone	150,000 SS <sup>58</sup>	2006-05-15	Same as Asheron's Calltive Worlds
163	<a href="#">Onverse</a>	Instance	600,000 SS <sup>51</sup>	2007-06-15	Onverse' world is not entirely copied and run on multiple parallel shards. But each region of the world has multiple copies, in case a large number of users want to access to the same region.
164	<a href="#">SmallWorlds</a>	Zone	25,000,000 CA <sup>62</sup> ; 101,335 UV (Daily) <sup>63</sup>	2007-12-01	Same as Asheron's Calltive Worlds
165	<a href="#">Club Coeee</a>	Zone		2008-01-01	Same as Asheron's Calltive Worlds
166	<a href="#">Twinty</a>	Zone		2008-09-05	Same as Asheron's Calltive Worlds
167	<a href="#">Free Realms</a>	Shard + Instance	20,000,000 CA <sup>52</sup>	2009-04-28	Same as Asheron's Call
168	<a href="#">WoozWorld</a>	Zone	8,500,000 CA <sup>60</sup> ; 2,673,173 UV (Monthly) <sup>61</sup>	2010-01-01	Same as Asheron's Calltive Worlds
169	<a href="#">Chit Chat City</a>		Few CU; 22,610 UV (Daily) <sup>64</sup>	2010-01-01	Chit Chat City seems to be run on only one server with no restriction in each zone. But, the user population of this world is too small to show its scalability.
170	<a href="#">Play-town Game</a>	Instance	Few CU	2014-01-20	Same as Onverse

No.	Name	Scalability Approach	Population <sup>1,2,3</sup>	Release Date	Description on Architecture
171	<a href="#">Zanpo</a>		Few CU; 47 UV (Daily) <sup>67</sup>		Zanpo seems to be run on only one server with no restriction in each zone. But, the user population of this world is too small to show its scalability. Beside, no player interaction is designed.
172	<a href="#">OpenSim</a>	Zone	496,344 CA; 34,160 AA <sup>55</sup>	N.A.	OpenSim includes all public virtual worlds which are constructed with the OpenSim platform. On this platform, many virtual worlds are operated and connected to each other through Hypergrid protocol, including InWorldz, Kitley, OSGrid, etc.
<b>Child's Worlds</b>					
173	<a href="#">Whyville</a>	Zone + Instance	4,000,000 CA <sup>71</sup> ; 750,000 UV (Monthly) <sup>72</sup>	1999-02-01	Whyville is run only on one shard. The entire world is divided on many zones each of which limits the number of concurrent user access. Some rooms have multiple copies.
174	<a href="#">Toontown Online</a>	Shard + Zone	110,000 AA	2003-06-02	The Toontown world is copied into several parallel servers. On each server, each zone only allows limited number of users.
175	<a href="#">Club Penguin</a>	Shard + Zone	200,000,000 CA <sup>68</sup>	2005-10-24	Same as Toontown Online
176	<a href="#">Roblox</a>	Instance	100,000 CU <sup>69</sup>	2006-01-01	Roblox is not run on multiple parallel shards. Each region of the world has multiple copies
177	<a href="#">Space Heroes Universe!</a>		2,000,000 CA <sup>70</sup>	2007-01-01	Little Space Heroes is run only on one shard. The entire world is divided on many zones, each of which limits the number of concurrent user access.
178	<a href="#">Poptropica</a>	Instance	500,000,000 CA	2007-09-01	As many instanced virtual worlds, the game assigns each user a unique instance to play. Some regions contain common rooms for user meet, chat, and interaction.
179	<a href="#">Fantage</a>	Shard + Instance	30,000,000 CA <sup>74</sup> ; 3,300,000 UV (Monthly) <sup>75</sup>	2008-04-01	The shards of Fantage are deployed in United States, Spain, and Japan <sup>76</sup> . On each shard, users play in the same world. Regions do not have population restriction. Some regions have instanced rooms.
180	<a href="#">MovieStarPlanet</a>	Instance	200,000,000 CA <sup>73</sup>	2009-01-01	Same as Roblox

1. I. V. Geel MMOData Blog (2014). <http://mmodata.blogspot.com>. Accessed October 15, 2015.
2. W. B. Sterling, MMOGCHAR.COM (2011). <https://web.archive.org/web/20110903033451/http://mmogchart.com/Chart1.html>. Accessed 15 October 2015.
3. Steam Spy (2016). <http://steamspy.com>. Accessed 21 January 2016.
4. Never Winter Nights. Massively Overpowered (2015). <http://massivelyop.com/2015/05/02/the-game-archaeologist-aols-neverwinter-nights>. Accessed 15 October 2015.
5. Guild Wars Surpasses Six Million Units Sold. Guild Wars Press Release (2009). <http://gw1101.gtm.guildwars.com/events/press/releases/pressrelease-2009-04-24.php>. Accessed 21 January 2016.
6. C. Johanson. Colin Johanson on Guild Wars 2 in the Months Ahead (2013). <https://www.guildwars2.com/en/news/colin-johanson-on-guild-wars-2-in-the-months-ahead>. Accessed 15 October 2015.
7. Guild Wars 2 News - One Million Sold, 400k Concurrent Users During Head Start. MMORPG.com (2012). <http://www.mmorpg.com/gamelist.cfm/loadNews/25387/One-Million-Sold-400k-Concurrent-Users-During-Head-Start>. Accessed 23 January 2016.
8. Final Fantasy 14 Reaches 5 Million Subscribers (#2 After WoW) (2015). <http://mmos.com/news/final-fantasy-14-reaches-5-million-subscribers>. Accessed 15 October 2015.
9. Adventure Quest Worlds Reaches 10 Million Players In First 10 Months (2009). <http://www.ign.com/articles/2009/08/25/adventurequest-worlds-reaches-10-million-players-in-first-10-months>. Accessed 26 January 2016.
10. Population Estimate: 55,000-159,000 Players (2009). <http://www.gamefaqs.com/boards/927504-age-of-conan-hyborian-adventures/45783900>. Accessed 26 January 2016.
11. <http://games.sina.com.cn/ol/n/2015-03-09/1534857118.shtml>. Accessed 26 January 2016.

12. Reddit MMO Data (2016). <http://mmo.blakey.co>. Accessed 26 January 2016.
13. Review: The Official BSGO Review (2012). <http://www.mmorpg.com/gamelist.cfm/game/538/view/reviews/load/193/The-Official-BSGO-Review.html>. Accessed 26 January 2016.
14. Black Desert Transcends 1.5 Million Registered Users. MMO Games (2015). <http://www.usreveal.com/black-desert-transcends-1-5-million-registered-users>. Accessed 21 January 2016.
15. Over One Million People Are Trying To Play Blade And Soul (2016). <http://www.mmobomb.com/news/one-million-people-trying-play-blade-soul>. Accessed 26 January 2016.
16. Cabal Online Hits New PCU. Pacific Epoch (2007). <http://pacificepoch.com/china-investment-research/articles/cabal-online-hits-new-pcu>. Accessed 18 January 2016.
17. How Many Players Did City of Heroes / Villains Have After Launching Freedom? (2012). <http://evilasahobby.com/2012/02/19/how-many-players-did-city-of-heroes-villains-have-after-launching-freedom>. Accessed 18 January 2016.
18. Bigpoint Releases Rise of Balor, the Biggest Update for Drakensang Online yet, and Announces 30 Million Registered Players. Develop (2015). <http://www.develop-online.net/press-releases/bigpoint-releases-rise-of-balor-the-biggest-update-for-drakensang-online-yet-and-announces-30-million-registered-players/0210615>. Accessed 18 January 2016.
19. The Surprising Success of DC Universe Online on Consoles (2014). <http://www.usgamer.net/articles/the-surprising-success-of-dc-universe-online>. Accessed 26 January 2016.
20. DOFUS News - 3.5 Million Subscribers, 30 Million Registered Users. MMORPG.com (2010). <http://www.mmorpg.com/gamelist.cfm/loadNews/16803/35-Million-Subscribers-30-Million-Registered-Users>. Accessed 23 January 2016.
21. Most Popular MMORPGs In The World (2015). <http://mmos.com/editorials/most-popular-mmorpgs-world>. Accessed 26 January 2016.
22. Actoz Games Set To Launch Over 30 Mobile Games Including Dragon Nest: Labyrinth (MobileGameWire). GameNewswire (2015). <http://www.develop-online.net/press-releases/actoz-games-set-to-launch-over-30-mobile-games-including-dragon-nest-labyrinth/0207056>. Accessed 18 January 2016.
23. Dragon Quest X Has An Impressive 300,000 Daily Active Players In Japan. Siliconera (2014). <http://www.siliconera.com/2014/03/14/dragon-quest-x-impressive-300000-daily-active-players-japan>. Accessed 21 January 2016.
24. The Hourly Traffic Report For All The Servers In DDO (2015). <http://ddoracle.com/Traffic.html>. Accessed 26 January 2016.
25. This is How Many Subscribers 'The Elder Scrolls Online' Has (2014). <http://gamerant.com/elder-scrolls-online-subscriber-numbers-revenue>. Accessed 26 January 2016.
26. Mega Server. ElderScrollsOnline.info. <http://elderscrollsonline.info/mega-server>. Accessed 18 January 2016.
27. Hands-On With The Elder Scrolls Online. Tamriel Foundry (2012). <http://tamrielfoundry.com/2012/10/eso-media-event>. Accessed 18 January 2016.
28. 2010-2012 - NEXON Corporation History. Nexon (2011). [https://company.nexon.com/Eng/Company/History/History\\_2010\\_2012.aspx](https://company.nexon.com/Eng/Company/History/History_2010_2012.aspx). Accessed 22 January 2016.
29. Entropia Universe: 500k Served. Game Daily Biz (2006). <https://web.archive.org/web/20071013194658/http://biz.gamedaily.com/industry/news/?id=14132>. Accessed 21 January 2016.
30. China Analyst - News and Insights on U.S.-Listed Chinese Stocks: Ranking of Top 10 Online Games in China and Its Implications (2007). [http://web.archive.org/web/20110318232511/http://www.cnanalyst.com/2007/05/ranking\\_of\\_top\\_.html](http://web.archive.org/web/20110318232511/http://www.cnanalyst.com/2007/05/ranking_of_top_.html). Accessed 04 January 2016.
31. Best-Selling Steam Games Of 2015 List Has A Few Surprises. Eurogamer.net (2016). <http://www.eurogamer.net/articles/2016-01-05-best-selling-steam-games-list-has-a-few-surprises>. Accessed 21 January 2016.
32. Hack Brief: Hello Kitty Sites Spill Details of 3.3 Million Users. Wired (2015). <http://www.wired.com/2015/12/hello-kitty-hack>. Accessed 23 January 2016.
33. (2006). [http://games.qq.com/a/20061207/000116\\_11.htm](http://games.qq.com/a/20061207/000116_11.htm). Accessed 04 January 2016.
34. Phantasy Star Online 2 Heads to PS4 in 2016. Anime News Network (2016). [http://www.animenewsnetwork.com/news/2015-08-16/phantasy-star-online-2-heads-to-ps4-in-2016/\\_91726](http://www.animenewsnetwork.com/news/2015-08-16/phantasy-star-online-2-heads-to-ps4-in-2016/_91726). Accessed 21 January 2016.
35. Five Year Of Piracy. Puzzle Pirates Newsletter (2008). <https://www.puzzlepirates.com/newsletter/spyglass/2008/dec.xhtml?lang=en>. Accessed 24 January 2016.
36. Best International PC Game 2009: Runes of Magic. IGN (2009). <http://www.ign.com/articles/2009/12/10/best-international-pc-game-2009-runes-of-magic>. Accessed 21 January 2016.
37. One Million Gamers Now Registered For The Secret World Beta. Funcom. [http://www.thesecondworld.com/news/one\\_million\\_gamers\\_now\\_registered\\_for\\_the\\_secret\\_world\\_beta](http://www.thesecondworld.com/news/one_million_gamers_now_registered_for_the_secret_world_beta). Accessed 07 January 2016.
38. Silkroad Online boasts 7.2 million registered users. Engadget (2008). <http://www.engadget.com/2008/06/26/silkroad-online-boasts-7-2-million-registered-users>. Accessed 21 January 2016.
39. Spiral Knights celebrates 3,000,000 registered accounts. Engadget (2012). <http://www.engadget.com/2012/05/17/spiral-knights-celebrates-3-000-000-registered-accounts>. Accessed 21 January 2016.
40. Twelve Sky 2. Gameindustry.biz (2010). <http://www.gamesindustry.biz/articles/twelve-sky-2-martial-arts-mmog-launches-commercial-service-in-thailand>. Accessed 21 January 2016.
41. Nexon Korea's Mabinogi: Heroes Exceeds 100,000 Concurrent Users<3659.T>. Reuters (2014). <http://www.reuters.com/article/nexon-idUSnBw146834a+100+BSW20140115>. Accessed 21 January 2016.
42. 11,000 Concurrent Beta Testers Are Playing Wildstar According To The Most Recent Update. Wildstarfans.net (2014). <http://www.wildstarfans.net/2014/02/11000-concurrent-users-playing-wildstar.html>. Accessed 21 January 2016.

43. WildStar's Popularity Caught Carbine By Surprise, 4 Times More Subscribers Than Open Beta Players [UPDATE]. Crave Online (2014). <http://www.craveonline.com/site/709613-wildstars-popularity-caught-carbine-by-surprise-4-times-more-subscribers-than-open-beta-players#comment-1443154215>. Accessed 21 January 2016.
44. 50 Million Players. Wizard101.com. <https://www.wizard101.com/game/50-million-giveaway>. Accessed 21 January 2016.
45. Wonderland Online Interview. IGN Entertainment (2008). <https://web.archive.org/web/20110713004714/http://rpgvault.ign.com/articles/893/893260p1.html>. Accessed 21 January 2016.
46. "Scions of Fate Interview - Part 2" IGN. (2006). <http://web.archive.org/web/20101226060718/http://rpgvault.ign.com/articles/745/745476p1.html>. Accessed 28 December 2015.
47. Activeworlds.com and Juno to Provide 3-D Chat Service. Active Worlds Newsletter (2000) <http://activeworlds.com/newsletter/1000/10001.html>. Accessed 21 January 2016.
48. Habbo Hotel - Where Else? Sulake (2010). <https://web.archive.org/web/20100811173205/http://www.sulake.com/habbo>. Accessed 22 January 2016.
49. C. Nutt. AGDC: Haro On Making Habbo A Success (2007). [http://www.gamasutra.com/php-bin/news\\_index.php?story=15397](http://www.gamasutra.com/php-bin/news_index.php?story=15397). Accessed 15 October 2015.
50. Opensim Passes 70,000 Regions. Hypergrid Business (2015). <http://www.hypergridbusiness.com/2015/11/opensim-passes-70000-regions>. Accessed 22 January 2016.
51. Kuboo Inc Signs Letter Of Agreement To Acquire Onverse LLC. Reuters (2013). <https://web.archive.org/web/20150610195106/http://www.reuters.com/finance/stocks/SGTB.PK/key-developments/article/2801075>. Accessed 21 January 2016.
52. Q2 2011 VW cumulative registered accounts reaches 1.4 billion. Kzero (2011). <http://www.kzero.co.uk/blog/q2-2011-vw-cumulative-registered-accounts-reaches-1-4-billion>. Accessed 22 January 2016.
53. Kaneva, Inc. Sony eBook Library. <http://sonyebooklibrary.com/articles/Kaneva, Inc>. Accessed 21 January 2016.
54. Meez Becomes Profitable With 3 Million Monthly Users. Adweek Blog Network (2009). <http://www.adweek.com/socialtimes/meez-becomes-profitable-with-3-million-monthly-users/2433?red=st>. Accessed 21 January 2016.
55. Moove.com. <http://www.moove.com>. Accessed 21 January 2016.
56. IMVU Reaches 20M Users, Virtual Economy Still Strong. Mashable (2008). [http://mashable.com/2008/06/24/imvu-milestone/#GxFhFGz\\_r8qH](http://mashable.com/2008/06/24/imvu-milestone/#GxFhFGz_r8qH). Accessed 21 January 2016.
57. IMVU Reports 3M Users & 2M+ Facebook Fans; Says Concern Over Linking RL & Virtual Identities "Not a Big Problem". New World Notes (2011). <http://nwn.blogs.com/nwn/2011/06/imvu-more-popular-than-second-life.html>. Accessed 22 January 2016.
58. Virtual World Plans Expansion Based On Real-Life Cities. InformationWeek (2007). <http://www.informationweek.com/virtual-world-plans-expansion-based-on-real-life-cities-/d/d-id/1057188?> Accessed 21 January 2016.
59. Interview: Uthervse Looks to Partner Up with Flirt.com for Online Dating. Virtual Worlds News (2008). <https://web.archive.org/web/20101024182003/http://www.virtualworldsnews.com/2008/03/interview-uther.html>. Accessed 22 January 2016.
60. Wooworld Launches WoozIn, A Facebook For Kids. TechCrunch (2011). <http://techcrunch.com/2011/12/13/wooworld-launches-woozin-a-facebook-for-kids>. Accessed 22 January 2016.
61. Top 10 Virtual World 2011 & 2012 Comparison for Teens in the U.S. 360Kid (2011). [http://www.360kid.com/st/360KID\\_Kidscreen\\_Virtual\\_World\\_sample\\_page.pdf](http://www.360kid.com/st/360KID_Kidscreen_Virtual_World_sample_page.pdf). Accessed 22 January 2016.
62. Sprechen Sie Deutsch? German SmallWorlds Is Here! SmallWorlds News (2014) <http://www.smallworlds.com/news/sprechen-sie-deutsch-german-smallworlds>. Accessed 22 January 2016.
63. SmallWorlds.Com Snoop Summary. W3 Snoop (2016). <http://smallworlds.com.w3snoop.com>. Accessed 22 January 2016.
64. Chitchatcity.com. W3 Snoop (2016). <http://chitchatcity.com.w3snoop.com>. Accessed 22 January 2016.
65. WeeWorld About. <http://www.weeworld.com/about/index.html>. Accessed 22 January 2016.
66. Teens Still Spend on Virtual Goods, Says WeeWorld. Bub.blicio.us (2010). <http://bub.blicio.us/teens-still-spend-on-virtual-goods-says-weeworld>. Accessed 22 January 2016.
67. Zampo.com. W3 Snoop (2016). <http://zampo.com.w3snoop.com>. Accessed 22 January 2016.
68. 'Star Wars' Takes Over Disney's Club Penguin. Variety (2013). <http://variety.com/2013/digital/news/star-wars-takes-over-disneys-club-penguin-1200561084>. Accessed 20 January 2016.
69. Achievement Unlocked: 100,000 Concurrent ROBLOX Users. Roblox Blog (2012). <http://blog.roblox.com/2012/11/achievement-unlocked-100000-concurrent-roblox-users>. Accessed 21 January 2016.
70. 'Space Heroes' Gets Asian Agent. License! Global (2013). <http://www.licensemag.com/license-global/%E2%80%98space-heroes%E2%80%99-gets-asian-agent>. Accessed 08 January 2016.
71. Merrilea J. Mayo (2009). "Video Games: A Route to Large-Scale STEM Education." Science Magazine. <http://science.sciencemag.org/content/323/5910/79.full>. Accessed 21 January 2016.
72. About Whyville. Whyville (2004). <http://www.whyville.net/top/media.pdf>. Accessed 21 January 2016.
73. MovieStarPlanet Corporate About Page. <http://corporate.moviestarplanet.com/about>. Accessed 13 January 2016.
74. 30 MILLION users!!! Fantage Web Blog (2015). <https://web.archive.org/web/20150626110401/http://blog.fantage.com/?p=14385>. Accessed 23 January 2016.
75. Watch out, Disney, Fantage doubles its growth for kids virtual world. VentureBeat (2010). <http://venturebeat.com/2010/09/18/watch-out-disney-fantage-doubles-its-growth-for-kids-virtual-world>. Accessed 23 January 2016.
76. Servers. Fantage Wiki. <http://fantage.wikia.com/wiki/Servers>. Accessed 23 January 2016.
77. (2010). <http://tech.sina.com.cn/i/2010-07-05/22284388203.shtml>. Accessed 23 February 2016.
78. (2012). [http://dnf.qq.com/webplat/info/news\\_version3/119/495/496/m397/201201/54523.shtml](http://dnf.qq.com/webplat/info/news_version3/119/495/496/m397/201201/54523.shtml). Accessed 23 February 2016.

79. (2012). <http://newgame.duowan.com/1208/209746415661.html>. Accessed 23 February 2016.
80. (2005). <http://news.17173.com/content/2005-12-28/20051228183001880.shtml>. Accessed 23 February 2016.
81. <http://game.163.com/milestone.html>. Accessed 23 February 2016.
82. (2007). [http://xyq.163.com/2007/12/3/99\\_184087.html](http://xyq.163.com/2007/12/3/99_184087.html). Accessed 23 February 2016.
83. (2008). [http://xyq.163.com/2008/8/4/99\\_191221.html](http://xyq.163.com/2008/8/4/99_191221.html). Accessed 23 February 2016.
84. (2009). <http://tech.163.com/09/0803/10/5FPL6P9L000915BF.html>. Accessed 23 February 2016.
85. J. Mulligan, & B. Patrovsky (2003). *Developing online games: An insider's guide*. New Riders. pp. 462.
86. TERA crosses 1.4 million after F2P switch (2013). <http://www.gamesindustry.biz/articles/2013-03-20-tera-crosses-1-4-million-after-f2p-switch>. Accessed 23 February 2016.
87. Lineage II: awesome views, rave reviews! (2007). <http://www.mcvuk.com/press-releases/read/lineage-ii-trade-awesome-views-rave-reviews>. Accessed 23 February 2016.
88. Knight Online Numbers Four Million Registered Users (2007). [http://www.gamershell.com/news\\_38641.html](http://www.gamershell.com/news_38641.html). Accessed 23 February 2016.
89. Legend Of Mir 3 - Avenge Server - Free online MMORPG (2010). <http://avengemir3.blogspot.com/2010/05/legend-of-mir-3-avenge-server-free.html>. Accessed 23 February 2016.
90. [http://www.changyou.com/1\\_2\\_1.shtml](http://www.changyou.com/1_2_1.shtml). Accessed 23 February 2016.
91. <http://weibo.com/2025374111/DiAn4BogQ>. Accessed 23 February 2016.