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Design and Implementation of a Multihoming-Based Scheme to Support Mobility Management in NEMO (Article)

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Abstract   ⌄ View references (22)

With the worldwide deployment of different wireless access technologies and expanding requests for worldwide Internet accessibility, Network Mobility (NEMO) is turning out to be all the more requesting innovation. Therefore, NEMO Basic Support Protocol (NEMO BSP) has been anticipated by the NEMO Working Group for the continual worldwide connectivity of each node within the mobile network. Yet, NEMO BSP experiences from higher handoff delay and packet loss. Thus, fails to provide seamless handoff. This issue can be resolved by introducing multihoming concept in NEMO. The reason is to support concurrent use of multiple interfaces on a single Mobile Router. Therefore, the main objective of this paper is to propose an innovative Multihoming-based scheme to support Mobility management in Proxy NEMO (MM-PNEMO) environment. In addition, the performance is assessed utilizing simulation approach to certifying the applicability as well as the efficacy of the suggested scheme. The performance metrics used for evaluation are namely handoff delay, packet loss, packet delivery ratio, as well as throughput. The simulation is done using NS-3 network simulator. The simulation outcomes demonstrate that the proposed MM-PNEMO scheme outperforms the standard NEMO BSP and PNEMO in terms of packet loss (less than 1%) and handoff delay (average improvement by 76%). © 2016, Springer Science+Business Media New York.

Author keywords

Mobility management   Multihoming   NEMO   NEMO BSP   PNEMO

Indexed keywords

Engineering controlled terms:	Mobile telecommunication systems	Packet loss	Routers	Wireless networks
Compendex keywords	Mobility management	Multi-homing	NEMO	Nemo bsp	PNEMO
Engineering main heading:	Packet networks			

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Hossain, M. S., Atiquzzaman, M. & Ivancic, W

☐ 2   *Performance comparison between multihomed network mobility protocols. In Global communications conference (GLOBECOM), 2012 IEEE. IEEE*
Hossain, M. S., Atiquzzaman, M. & W. Ivancic

☐ 3   Devarapalli, V., Wakikawa, R., Petrescu, A., Thubert, P.
Network mobility (NEMO) basic support protocol
(2005) *IETF RFC*, p. 3963. Cited 306 times.

☐ 4   (2011) *Cost analysis of mobility management entities of SINEMO. In Communications (ICC), 2011 IEEE international conference on. IEEE*
Hossain, M. S., Atiquzzaman, M., & Ivancic, W

☐ 5   Lee, J.-H., Ernst, T.

Lightweight network mobility within PMIPv6 for transportation systems

(2011) *IEEE Systems Journal*, 5 (3), art. no. 5873168, pp. 352-361. Cited 26 times.
doi: 10.1109/JSYST.2011.2158681

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☐ 6   Lee, J.-H., Ernst, T., Chilamkurti, N.

Performance analysis of PMIPv6-based NEtwork mobility for intelligent transportation systems

(2012) *IEEE Transactions on Vehicular Technology*, 61 (1), art. no. 5776712, pp. 74-85. Cited 57 times.
doi: 10.1109/TVT.2011.2157949

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☐ 7   Lee, C.-W., Chen, M.C., Sun, Y.S.

A novel network mobility management scheme supporting seamless handover for high-speed trains

(2014) *Computer Communications*, 37, pp. 53-63. Cited 9 times.
doi: 10.1016/j.comcom.2013.09.009

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☐ 8   Wakikawa, R., Devarapalli, V., Tsirtsis, G., Ernst, T., Nagami, K.
Multiple care-of addresses registration
(2009) *IETF RFC*, p. 5648. Cited 24 times.

☐ 9   Tsirtsis, G., Soliman, H., Montavont, N., Giaretta, G., Kuladinithi, K.
Flow bindings in mobile IPv6 and network mobility basic support protocol (NEMO BSP)
(2011) *IETF RFC 6089.-95*

10 Meneguette, R.I., Bittencourt, L.F., Madeira, E.R.M.

A seamless flow mobility management architecture for vehicular communication networks

(2013) *Journal of Communications and Networks*, 15 (2), art. no. 6512245, pp. 207-216. Cited 13 times.
doi: 10.1109/JCN.2013.000034

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11 Calderon, M., Bernardos, C., Soto, I.
PMIPv6 and network mobility problem statement. IETF
(2012) *draft-bernardos-netext-pmipv6-nemo-ps-02*

12 Krishnan, S.
Issues with network based inter-technology handovers
(2009) *IETF draft-krishnannetextintertech-ps-02*. Cited 2 times.

13 Ryu, S., Park, K.-J., Choi, J.-W.

Enhanced fast handover for network mobility in intelligent transportation systems

(2014) *IEEE Transactions on Vehicular Technology*, 63 (1), art. no. 6553171, pp. 357-371. Cited 19 times.
doi: 10.1109/TVT.2013.2272059

View at Publisher

14 Choi, J.-I., Seo, W.-K., Cho, Y.-Z.

Efficient network mobility support scheme for proxy mobile IPv6

(2015) *Eurasip Journal on Wireless Communications and Networking*, 2015 (1), art. no. 210, p. 13. Cited 3 times.
http://www.springerlink.com/content/1687-1499/
doi: 10.1186/s13638-015-0437-8

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15 Kuntz, R., Montavont, J., Noel, T.

Multihoming in IPv6 mobile networks: Progress, challenges, and solutions

(2013) *IEEE Communications Magazine*, 51 (1), art. no. 6400449, pp. 128-135. Cited 22 times.
doi: 10.1109/MCOM.2013.6400449

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16 Park, H.-D., Park, K.-N.
A multihoming-based vertical handover scheme
(2013) *IT Convergence and Security*
Dordrecht: Springer

17 Chen, X., Zhang, H., Chang, Y.-C., Chao, H.-C.

Experimentation and performance analysis of multi-interfaced mobile router scheme

(2010) *Simulation Modelling Practice and Theory*, 18 (4), pp. 407-415. Cited 16 times.
doi: 10.1016/j.simpat.2009.09.005

View at Publisher

18 Bernardos, C.
Proxy mobile IPv6 extensions to support flow mobility. IETF
(2016) *draft-ietf-netext-pmipv6-flowmob-16*

19 Choi, H.-Y., Min, S.-G., Han, Y.-H., Koodli, R.

Design and simulation of a flow mobility scheme based on proxy mobile IPv6

(2012) *Journal of Information Processing Systems*, 8 (4), pp. 603-620. Cited 13 times.
http://www.jips-k.org/dlibrary/JIPS_v08_no4_paper6.pdf
doi: 10.3745/JIPS.2012.8.4.603

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20 Kim, J., Morioka, Y., Hagiwara, J.
An optimized seamless IP flow mobility management architecture for traffic offloading
(2012) *Network operations and management symposium (NOMS)*, p. 2012.
IEEE, IEEE

21 Melia, T., Bernardos, C.J., De La Oliva, A., Giust, F., Calderon, M.

IP flow mobility in PMIPv6 based networks: Solution design and experimental evaluation

(2011) *Wireless Personal Communications*, 61 (4), pp. 603-627. Cited 17 times.
doi: 10.1007/s11277-011-0423-3

View at Publisher

22 (2010) *Implementation and evaluation of proxy mobile IPv6 in NS-3 network simulator. In Ubiquitous information technologies and applications (CUTE), 2010 proceedings of the 5th international conference on. IEEE*
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