
Network Centric Policing: Alternative or Augmentation to the Neighborhood-Driven Policing (NDP) Model?

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This article is a continuing dialog concerning potential evolutions of the current philosophical models of policing and addresses specific aspects of the NDP model proposed by Bernard H. Levin and Richard W. Myers. It should be understood that like their seminal work, this paper is intended to stimulate additional discussion regarding the various philosophies of policing and expand the existing range of choices available for adoption by police agencies in the future. The concept of Network Centric Policing (NCP) is intended as a theoretical guideline along a continuum more than a proscriptive mandate. It should also be noted that while I take issue with some aspects of the NDP model and offer an alternative perspective, I agree with the overall thrust and intent of the authors and commend them for their futuristic vision and foresight. Some, if not all of my differences with the NDP model as proposed are likely the result of my own misinterpretation of their excellent ideas and not due to errors or deficiencies with the NDP model itself. It is understood that this proposed NDP model is in the very early conceptual phase and many of its finer details remain to be developed. By nature of this discussion, many of the complexities and nuances of the various policing models, including NDP and NCP, will be ignored or generalized. Much additional analysis, discussion, and clarification will be required to sort through all the competing issues and achieve even a modicum of mutual understanding, if not consensus. It is likely, however, that the neighborhood-driven and network centric models

could become dual components of the same policing philosophy of the future. Regardless, it is my hope that dialog on this subject will expand and improve our current policing options. We are certainly going to need them.

Introduction

Any philosophy of policing for the future that does not account for the dramatic changes to be wrought by technology in the next two decades will be fundamentally incomplete. This is true whether the philosophy is combat oriented or neighborhood-driven. The techniques of human decision-making, mechanisms of social interaction, as well as the processes and structures of organizations and communities, are changing unlike any other time in human history, and will continue to do so at an exponential rate (Kurzweil, 2001). Moreover, the tools by which we will conduct our lives and our businesses in just a few short years will offer us opportunities, benefits and dangers that are hard for many people to imagine today. The problems thus created will be potentially far more disruptive and socially, if not physically, destructive than those previously confronting society, and can be avoided only through the creation of real and timely solutions.

Twenty-first century technology will facilitate capabilities and requirements far beyond our own historical experience. Computer processing power will continue to increase exponentially (Kurzweil, 1999). Digital storage capacity and network transmission speeds, both wired and wireless, will continue to double every year (Lightman and Rojas, 2003). Micro and nanotechnologies are allowing for smaller and more human-centered form factors and will eventually enable computers and their power sources to be woven directly into the fabric of our

clothing (Mulhall, 2002). Augmented reality and augmented cognition will give one person in 2015 the same productivity as three or more people today (DARPA, 2003). Radio frequency identification and computer processing chips embedded within practically every manufactured item will allow us to interact with intelligent environments (homes, highways, office spaces, and public places) that are adaptable to and intuitive of our desires (Weiser, 1996). Intelligent agents and autonomous robots will free humans from today's mundane and trivial tasks that take very little creative intelligence but eat up inordinate amounts of time and detract from human productivity and leisure (Kotz and Gray, 1999). Cybernetic implants will enhance human performance and speed the exchange of information between the digital and biological world, creating a ubiquitous network of interconnected information nodes (Clark, 2003).

Twenty-first century police agencies must exploit these capabilities if they are to effectively serve their communities in the future, irrespective of the definition applied to "service" within a particular jurisdiction. The technology to gather, process, collate, analyze, and distribute information and intelligence in real-time to the right people at the right time in the right format will be available and increasingly more affordable. Businesses, non-police organizations, citizens, and our criminal/terrorist adversaries will take advantage of these capabilities. Police officers of the future must be able to compete in this future world. They will require the high degree of situational awareness provided by ubiquitous information and communication systems, advanced human-machine interfaces, and improved personal mobility. For law enforcement to be successful against the threats of the future and truly serve our communities, neighborhoods, and jurisdictions, we have to be

flexible, adaptable, and reconfigurable, bringing together the appropriate resources and personnel to tackle whatever a rapidly changing situation warrants. The only way to accomplish this is through the proactive and intelligent use of emerging technologies.

NDP: Industrial or Information Age?

The Levin/Meyers NDP model addresses this aspect of our future and acknowledges many of these points. It focuses quite correctly on the growing incompatibility of our traditional industrial age policing models with the information age and acknowledges the movement toward human networks and away from bureaucratic hierarchies. It notes the speed of communication and the use of modern technologies to facilitate interactive information sharing. However, it is not clear to me how the "neighborhood leading itself and deciding its own fate" necessarily translates into an information age model. This issue of industrial vs. information paradigms in the 21st century is, I believe, much more significant than the NDP model seems to suggest and requires a much more significant and fundamental restructuring than merely shifting authority from police to the neighborhood. NDP seems on its face primarily a philosophy of governance and accountability, another step along an evolutionary path from combat policing, to community oriented policing, to NDP - a further shift in the locus of control. This shift is, I think, appropriate in some cases, perhaps ultimately. But theoretically, under the NDP model a police department could continue to operate in an industrial age mode as long as the "neighborhood" controlled the delivery of police services and was apparently content with them.

In that sense, the NDP model by itself may not fully achieve the kind of change necessary for success in the coming decades. Changing the locus of control over delivery of police services from the police to the neighborhood, while theoretically desirable and perhaps achievable in many communities, addresses a philosophical issue of governance and authority but does not by itself move policing from the industrial to the information age, nor solve the very significant problems associated with the delivery of police services within the context of the overall public safety arena in a fast-paced world. Without a corresponding and dramatic change in community/police organization, management, structure, operational methodology, and technology, NDP might easily slow police decision-making, bogging it down in the hierarchical processes of its combat and community oriented predecessors through the centralized morass of an inefficient neighborhood board.

That neighborhood board, in most cases composed of unpaid community volunteers, may be very traditional in its governing processes and could easily be slower and more cumbersome than a traditional police bureaucracy in responding to community problems. Moreover, untrained community members may not have the skills or the desire necessary to drive improvements in the decision-making process. They may not be equipped mentally, psychologically, or culturally to cope with the radical technological changes required to move away from the industrial age paradigm they grew up with and might stifle police desires to improve and modernize. It may lock a neighborhood into an industrial age police methodology and allow isolation in operation, information sharing and interagency cooperation or interoperability. This may suit the board and may satisfy the desires of a particular local population but it does not address the fundamental

aspects of the information age that are dramatically impacting the broader public safety arena as well as the majority of police agencies in regards to crime, terrorism, and community (or neighborhood) peace, prosperity, and security.

I do not believe the neighborhood is the "only effective level" of homeland security as the authors suggest. Crimes, terrorist attacks, disasters, and public safety events are not exclusively or even predominantly local in nature. Rather, homeland security, crimes, disasters, traffic safety, order maintenance, and other public safety concerns, in the information age rapidly becoming the wireless information age, (Lightman and Rojas, 2003) are in fact most often multi-jurisdictional in nature. Criminals are more mobile today and their crimes, criminal enterprises, and the problems they create for society impact large regions while being multi-faceted and complex to solve. Further, these issues are best dealt with when coordinated "globally" with a strategic or unified orientation, not piecemeal and haphazardly by isolated departments with a parochial local predisposition. Effective homeland security, as well as the provision of public safety services, now and in the future, requires close and continuous coordination and cooperation across the spectrum of social resources and organizations, both geographically and electronically. To be effective this coordination and cooperation must occur at all levels of government (federal, state, and local), among all governmental sectors (police, fire, EMS, transportation, social services, military), between the public and private sectors (corporate security, business, not for profit), and between public servants and public citizens, within the neighborhood and otherwise.

This does not mean to imply the need for centralized control, highly structured processes and policies, or the imposition of rigid standards of operation. On the contrary, the information

age increasingly negates attempts to control, structure, and standardize. Fluid, dynamic, and seemingly chaotic processes will undoubtedly solve many of tomorrow's complex problems, but it is the unified, universal, and real-time sharing of useful information between all interested parties, groups and individuals that will be at the core of those processes. Access to all manner of information will be a requirement of this chaotic information age world that is increasingly interconnected and interdependent.

While none of this negates the validity, or even the desirability of the NDP model in many circumstances, there is, I believe, more to moving the policing world into the 21st century than simply shifting some departments, if their citizens so choose, to neighborhood control. We are in fact moving towards a network oriented social order - an interconnected web of individuals. Communication, information access, knowledge acquisition, and the individual productivity that results from them are the hallmarks of our collective future and derive from the growing connected array of individuals and their shared sources of information. This "network centric" society based upon the real-time and ubiquitous sharing of information is at the heart of today's technological advancement, driving radical social, political, economic, and cultural change in our world. It is the result of an increasing availability of useful, appropriate, and timely data, specifically tailored to an individual's environment, problems, and relationships. This immediate access to the right data in real time is changing people, organizations, and human interaction. Success in this new world (individual, organizational, and social) is dependent upon our continued ability to adapt, live within, and effectively apply net-centric principles and the technologies that support them (Alberts, et al, 1999).

The Theory

Network Centric Policing moves police organization and operation from the industrial age construct of centralized bureaucratic control, rigid hierarchical structures, systematic managerial processes, with formalized and authorized official policies and agreements, to a less structured, non-centralized, real-time association of interconnected individuals acting with regard to common goals. It is a philosophy that is fully compatible with, and capitalizes upon the tools and dynamics of the information age. The old models concern themselves with procedure, policy, order, and control. Their philosophy is one of process, command, and strict accountability. The NCP philosophy sets aside those concerns and concentrates on the product, on achieving success, on increasing individual productivity, on maximizing the distribution of information to solve real problems. The goal is achieving effective and appropriate solutions quickly in a rapidly changing environment. NCP requires a completely new culture of control, a new structure, new operational methodologies, and the emerging technological tools to facilitate them. It is a philosophy that embraces information age technology to maximize human productivity and effectively and efficiently solve human problems.

This network centric business or operational paradigm has been under development within the corporate world and the military for many years. In theory, net-centric operations are those where highly networked personnel draw on information from the widest variety of sources, including fixed and mobile sensors, and on-line databases, in real-time, and maximize the sharing of the accumulated information throughout the entire network continuously. This is much more than simply sharing information with fellow workers. The purpose of the NCP model is to

analyze and share information in a way that improves the overall quality of the information and thereby increases a shared situational and organizational awareness for everyone on the network. Improved overall awareness enables more effective and appropriate collaboration through the creation of mutual mental models (MMMs) which foster self-synchronization throughout the entire organization--the process whereby highly informed groups organize and direct their collective yet distributed activities from the bottom up, without centralized command or control but operating within a framework of organizational intent. This in turn creates a much more effective and efficient organization, accelerating and coordinating the accomplishment of all tasks to rapidly achieve organizational goals (Hutchins, et al, 2001).

The Concept

A net-centric police agency would be intricately connected, internally and externally. The "network" in this case is not just IT hardware but would consist of people (all agency personnel and local citizens), computers, databases, all manner of digital information derived from intelligence sources and sensors (e.g., neighborhood watch groups, private security guards, security and surveillance cameras, autonomous robots and unmanned aerial vehicles (UAVs)), information from other agencies/organizations (local, state and federal government, along with information from citizens, the neighborhood, the larger community, and an entire region). It would use this network to generate, collate, analyze, and distribute information to everyone who needs it, in real time, in the manner required to best utilize it to achieve positive policing results. The purpose of this information network is not simply to

provide individual officers appropriate information at a specific time and place, though that is certainly desirable. The main purpose of the network is to provide everyone a comprehensive picture of:

- The organization its mission, goals, current priorities, ongoing activities, unit deployments, organizational intent, and
- His or her immediate and local context.

These two continuously changing pictures combine to form a unique and detailed shared organizational awareness and enhanced situational awareness for every individual member of the agency. From this awareness flow the MMMs that allow all members to quickly make decisions and act in ways that are:

- Coordinated,
- Consistent,
- Effective,
- Mutually supporting, and
- Self-synchronizing.

In other words, with the right information, provided at the right time, within a commonly understood context, in a way that is useful and appropriate to every individual, there is no need for orders to be passed up and down a chain of command, no need for detailed and specific managerial directions and supervisory oversight for every situation, and no need for all of the bureaucratic industrial age processes that slow traditional police operations to a crawl and force agencies into a reactive instead of a proactive posture. Every member understands what he/she needs to accomplish, why he/she needs to accomplish it, the current parameters of organizational (commander's, community's or neighborhood's) intent, and the information necessary to do so quickly and effectively.

The concept of organizational intent is the unifying or controlling component of the NCP model. It forms the contextual basis for all actions within the organization. It consists not of direction, orders, or specific commands but of guidance: a generalized framework from which MMMs and self-synchronization can flow. In fact, there are organizational aspects of command, responsibility, and accountability that will be with us long into the future no matter how quickly we transition to the information age, but these aspects can all be retained within the NCP model. A fully networked organization, where everyone knows where everyone else is, what they are doing, and why they are doing it is inherently conducive to accountability.

This concept could also facilitate adoption of the NCP model itself to either of the combat or community oriented policing philosophies (though not without significant cultural and organizational modification), and most readily to the proposed NDP philosophy of Levin and Meyers. By applying respectively the commander's, the community's, or the neighborhood's intent within a net-centric model, each of these philosophies, generally speaking, could be accommodated. Table 1 compares the net-centric model with the combat, community and neighborhood-driven models. In any case, most departments require a transitional phase from one philosophy to another. By adopting the less bureaucratic, less authoritarian organizational intent concept, agencies might be able to slowly transition from hierarchical structures and reactive methodologies simply by continuously upgrading technology and learning to self-synchronize over time. It must be remembered however, that the more structure, hierarchy, and centralized direction an organization retains, the less effective the model will be in relation to others farther along the transitional path. But with a basic understanding of net-centric principles and

a desire to improve over time, any agency could transition its current policing philosophy into an information age net-centric model.

This conceptual model is quite obviously incomplete and will require the detailed consideration of a host of additional factors in order to be successful, such as:

- Resource acquisition and allocation,
- Recruiting, hiring, and training,
- Specialization vs. generalization,
- Sworn members vs. civilian employees,
- Agency and community/neighborhood interaction,
- Technology,
- Logistic support, and
- Administration.

Conclusion

Emerging and powerful technologies are driving change, both in the overall social and cultural context, and in our personal everyday lives. To be competitive and successful in a digital world requires an ability to confidently adapt to this changing landscape, creatively incorporating new tools and concepts into our lives while continuously evolving our business models and organizational processes to take advantage of them.

NCP could be this next evolutionary step for the operation of police agencies in the 21st century. Many of society's businesses and militaries, as well as its criminal and terrorist adversaries, are switching or have already adapted to a similar decentralized and self-synchronizing model of operation. If the policing profession cannot make a similar paradigm shift we may find ourselves being of little practical service to our communities and neighborhoods in the future. This shift cannot be accomplished by traditional

police agencies overnight. The leap would be too great. Therefore, we must begin the slow evolutionary shift immediately. The technological tools to facilitate the NCP model are emerging today. Centralized combat and community based approaches could be transitioned to the non-centralized, self-synchronized NCP model while retaining their combat-oriented or community-oriented philosophies in the short-term. The NDP model would appear to be an even better fit.

Endnotes

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Table 1. Comparison of Policing Models

	Combat Oriented	Community Oriented	Neighborhood Driven	Net-Centric
Control	Centralized	De-Centralized, Community Input	Neighborhood, Police Input	Organizational Intent ■ Commander, or ■ Community, or ■ Neighborhood
Structure	Hierarchical	Flatter Hierarchy	Neighborhood Determined	Human Network
Method of Operation	Reactive Response	Problem Oriented	Neighborhood Determined	Self-Synchronization Mutual Mental Models