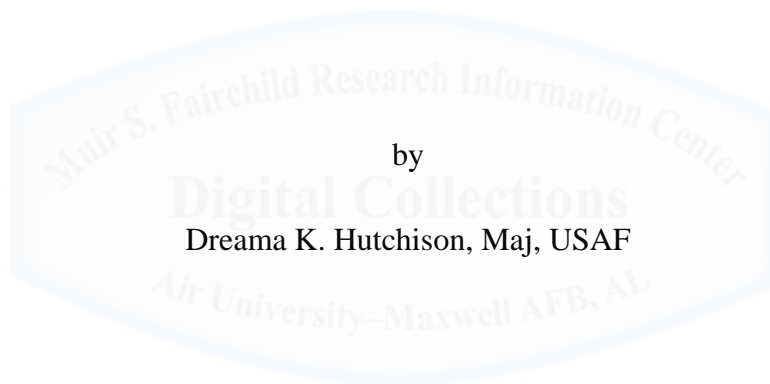


AU/ACSC/2017

AIR COMMAND AND STAFF COLLEGE

AIR UNIVERSITY

WINNING THE WAR IN CYBERSPACE: RETAINING
MILLENNIALS TO MEET AIR NATIONAL GUARD MISSION
REQUIREMENTS



by

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A Research Report Submitted to the Faculty

In Partial Fulfillment of the Graduation Requirements

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ABSTRACT

A worldwide shortage of cyber professionals over the next 10 years could impact the effort to retain Air National Guard (ANG) cyber warriors. To win the war in cyberspace, ANG leaders must retain these valuable employees. To retain an employee, the first step is to understand what they desire. Because tech savvy Millennials are the target demographic for cyber careers, this research focused on understanding the desires of Millennials in an effort to retain them. The ANG was presented an opportunity via Fiscal Year (FY) 2016 National Defense Authorization Act (NDAA) to convert not less than 20 percent of Title 32 Technicians to Title 5. Additionally, FY17 NDAA adds the request of a report on the feasibility and advisability of converting remaining Title 32 technicians to Active Guard Reserve (AGR). Each of these statuses has differences in organizational structure, compensation, physical demands and work-life balance. Research suggests these criteria will affect a Millennial's desire to commit to an organization. Utilizing the problem solution method, these criteria were weighted based on importance to Millennials. Each status was then assigned a multiplier determined by how well the hiring status supported the criteria. A decision matrix was then used to determine the best hiring status for Millennial retention. Title 5 status was found to be the most compatible in work-life balance, organizational structure and physical requirements. Because of this, the recommendation is for ANG leaders to capitalize on Title 5 conversion and convert ANG cyber warriors to a Title 5 status. Because Title 32 status is least compatible with the desires of Millennials, the recommendation is to convert remaining Title 32 technicians to AGR. If ANG leaders intend to meet the demands of a cyber driven Air Force, they must act now to retain cyber professionals.

INTRODUCTION

As missions become more technologically driven, cyber professionals are becoming an integral part of every mission set. Fifth generation F-35's have more than eight million lines of software code running: flight controls, navigation, weapons deployment systems and more.¹ Without cybersecurity, vulnerabilities could allow a malicious hacker to take down this multi-million dollar weapon-system with a stroke of the keyboard. This is just one example of how new technology will drive the demand for military members with valuable information technology (IT) skills.

The Air National Guard (ANG) is positioned in every state and is perfectly situated to execute cyber missions to defend our homeland in air and cyberspace. The ANG is "conducting defensive and offensive cyber operations in both Title 10 and Title 32 status."² Currently, future plans for the ANG to increase their roles in defending cyberspace are being written at federal, state and local levels.³ The investment in recruiting and training cyber warriors is costly and their skill-sets are marketable. For these reasons, it is imperative the ANG retain cyber professionals to meet the demands of current and future missions.

Section 1053 of FY 2016 NDAA requires the conversion of not less than 20 percent of Title 32 National Guard (NG) military technicians to Title 5 federal civilian employees.⁴ FY 2017 NDAA has added the request for a report from the National Guard Bureau (NGB) on the feasibility and advisability of conversion of remaining Title 32 technicians to an Active Guard Reserve (AGR) status.⁵ This presents ANG leaders an opportunity to use conversion as a tool to attract and retain cyber employees by hiring in a status most compatible with the desires of the target group for IT skill-sets, Millennials.

The Millennial generation, born between 1982 and 2004, make up a large percentage of

the current cyber workforce and are the target demographic for agencies seeking cyber skills. For this reason, it is important for ANG leaders to understand what this generation desires from an employer, and how to leverage these desires to retain them. Research on the retention of Millennials in both the active component of the armed forces and private sector, provide insight into what criteria are most important for successful retention among the Millennial generation.

This research paper will utilize the problem solution method to explore whether Millennials are best suited for Title 5, AGR or Title 32 status. Using a literature review, criteria was established outlining Millennial desires in an employer and the benefits associated with each status. A decision matrix will determine the best option. This quantitative method will result in a recommendation for ANG leaders to choose the best status to hire cyber professionals for long-term retention.

WHY CYBER?

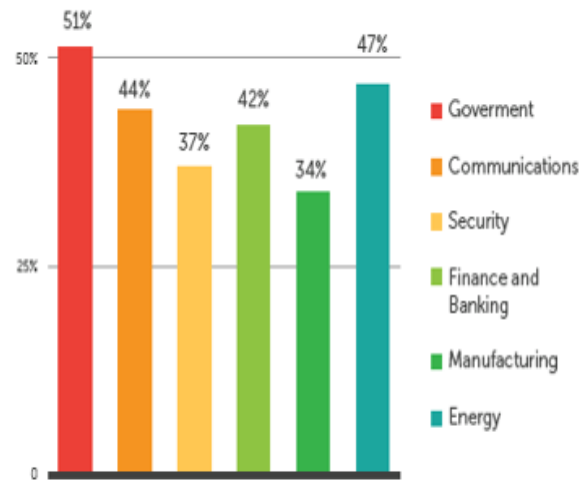
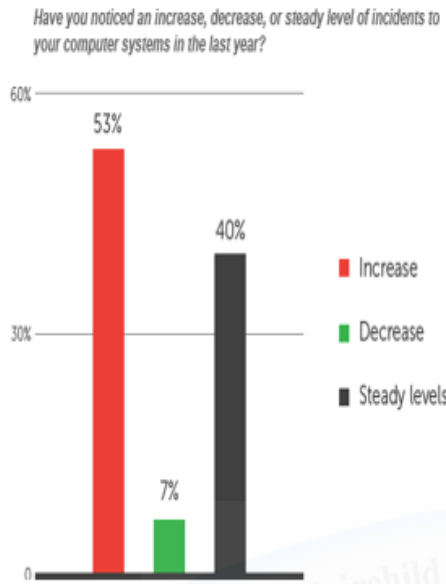
One need not look any further than the daily headlines to grasp the importance of cybersecurity. Attacks aimed at major corporations have caused chaos nationwide. One such attack, aimed at Sony Pictures, raised awareness when it was determined the attack was attributed to North Korea.⁶ The network breach resulted in not only embarrassment for many industry leaders, but cost the corporation millions, when a movie about the assignation of a fictional North Korean leader was cancelled.⁷ A cyber-attack can not only cause financial damage, but it also damages the credibility of the nation when networks are vulnerable to attack. In 2013, Target fell victim when hackers were able to steal over 40 million customer's credit and debit card numbers. This led to a 46 percent plunge in quarterly profits for the company, ultimately costing Target \$148 million and financial institutions an additional \$200 million.⁸

Recent cyber-attacks have had political impact as well. Through a process known as

social engineering, a cyber-attack aimed at the Democratic National Committee is said to have had a major impact on the 2016 U.S. Presidential election. And while the breach is still under investigation, the very idea of an enemy being able to manipulate the U.S. election process through cyber espionage is enough to cause great concern.

The vulnerability of U.S. infrastructure is another aspect of cyber warfare. A report facilitated by the Organization of American States, conducted an analysis of the state of cybersecurity in critical infrastructure in the Americas.⁹ The study focused on Supervisory Control and Data Acquisition (SCADA) systems, which are applications used to run critical infrastructure. These SCADA systems are growing at rapid speed with end devices consisting of “solar panels, wind turbines, electric vehicles, energy storage devices, smart buildings, smart appliances, smart inverters and other power electronics,” all of these represent vulnerabilities waiting to be exploited.¹⁰ More alarming, the report “concluded a majority of groups using targeted malware against SCADA systems originated from Russia.”¹¹ The report provided results of a quantitative survey among the heads of security of major critical infrastructures. When asked, “have you noticed an increase, decrease, or steady level of incidents to your computer systems in the last year,” 53 percent saw an increase in incidents.¹² Figure 1 shows energy and government are the two highest industries under attack.

Level of Incidents to the Computer System in the Last Year



According to the survey results, the government and energy sectors are the top two industries that experience destructive attacks by threat, followed by communications and finance and banking.

Figure 1. Cyber Incidents

(Reprinted from Organization of American States, “Report on Cybersecurity and Critical Infrastructure in the Americas,” Trend Micro Incorporated, 2015, 25.)

These are just a few examples of the need for a well-trained and properly staffed cyber force in the U.S. Washington understands this threat. On May 11, 2017 the White House released an executive order outlining a plan to strengthen the cyber security of federal networks and critical infrastructure. It states, “the executive branch has for too long accepted antiquated and difficult-to-defend IT,...agency heads will be held accountable by the President for implementing risk management measures commensurate with the risk and magnitude of harm resulting from unauthorized access, use, disclosure, disruption, modification, or destruction of IT and data.”¹³

This effort needs to start with staffing, training and retaining cyber talent. This will be difficult. The need for cyber professionals is growing and the supply is not keeping up with the

demand. The Center for Cyber Safety and Education recently estimated there will be a global shortage of 1.8 million cybersecurity professionals by 2022.¹⁴ Additionally, the Bureau of Labor Statistics (BLS) reported the projected employment growth of computer related services to be much higher than other industries. BLS predicts employment growth for IT career fields are set to increase up to 71.7 percent from 2010-2020.¹⁵ Figure 2 below shows the demand for cyber skills far out pacing that of other industries.

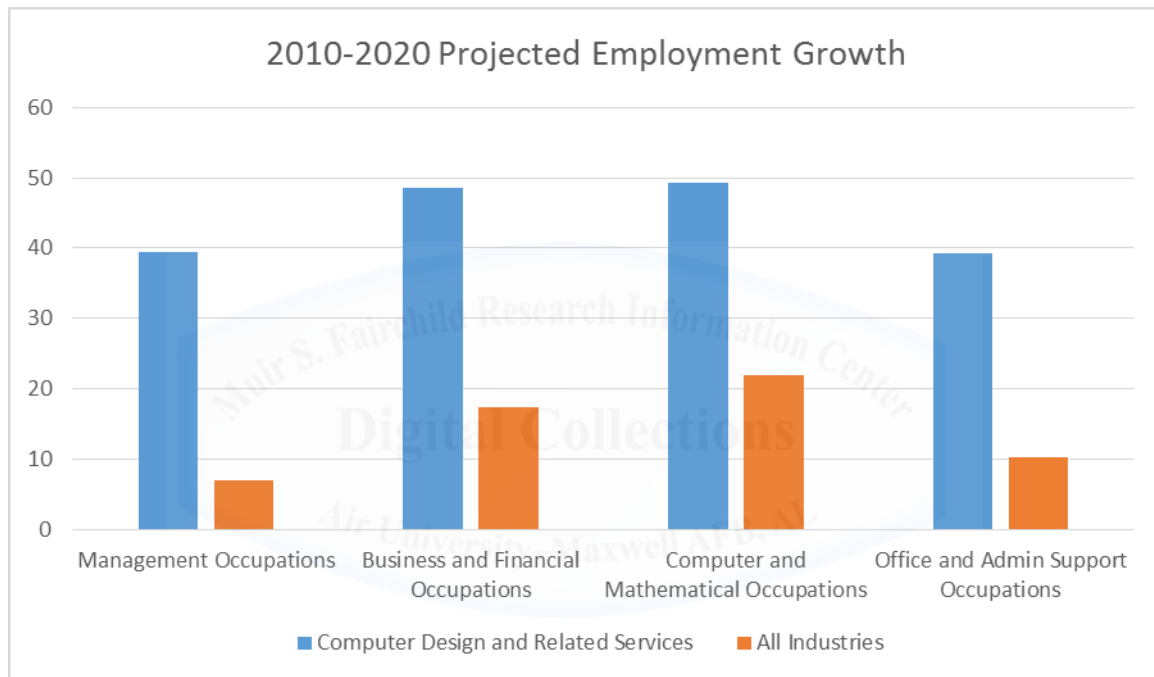


Figure 2. Cyber Employment Growth 2010-2020

(Adapted from Lauren Csorny, “Careers in the growing field of information technology services,” Beyond the Numbers: BLS, April 2013 | Vol. 2 / No. 9.)

As demand grows, the salaries companies are willing to pay for top performers also grows. This will come at a great cost to the ANG if actions are not taken to retain employees. According to the 2014 Financial Management costing tables, the average cost of training an Airman in a 3D (Cyber) Air Force Specialty Code (AFSC) is \$56,000.¹⁶ Other sources have estimated the turnover cost of an employee ranges from 50 to 150 percent of the departing employee’s annual wage.¹⁷

Once trained, Airmen have valuable skills making them very marketable. In June of 2016, a Task Force on defense personnel generated a report titled, “Losing Our Edge: Pentagon Personnel Reform and the Dangers of Inaction.”¹⁸ In this report “Admiral Michael Rogers, Commander of U.S. Cyber Command, said he is trying to accelerate the nation’s cyber defenses but is already “hard pressed to find qualified personnel” for cyber units.”¹⁹ With the private sector providing demand, and the Air Force supplying cyber warriors, the result is the perfect storm. ANG leaders need to be proactive in retention efforts to attract and execute new and existing cyber missions.

WHY THE ANG?

The National Guard being the “most widely distributed military force in the homeland” has made the ANG an integral part of defending the nation’s vulnerable cyber domain.²⁰ “Civilian-acquired skills, geographic dispersion and existing capabilities uniquely position the National Guard to help the Defense Department boost the nation's cyber security.”²¹ ANG wings can be positioned near large industrial and academic facilities to capitalize on their civilian cyber expertise.²² This allows the ANG to incorporate the best and brightest in the cyber community into the traditional ANG force. While the ANG is thought of as a part-time force, every guard unit is also manned with full-time employees. The full-time staff is in place to train and equip traditional, part-time guardsmen to serve when needed. Additionally, some ANG missions require a large full-time force to execute missions’ home station. Examples include, homeland defense, training units, and cyber.

In 2005 the Air Force refined its mission statement to include the defense of cyberspace. Since then, great effort has been made to define the mission and develop a cyber workforce. Now, cyber plays a critical role in every Air Force mission. In 2010, Air Forces Cyber (AFCYBER) was stood up to deliver “full-spectrum, global cyberspace capabilities and effects for our Service, the Joint

Force, and our Nation.”²³ The cyber landscape is continuing to grow. Efforts are under way to integrate cyber teams to protect vulnerable core missions. Lt. Gen. William J. Bender, the Air Force chief information officer (CIO) stated in an article published in May of 2017, "We are leaning forward to tailor the cyber force by leveraging industry partners and the joint information environment to perform basic IT services, thereby enabling Airmen to move away from a unitary focus on IT service delivery toward a holistic cyberspace approach that includes active mission defense and mission assurance."²⁴ Through this effort, the Air Force Network has been extended to ANG bases, allowing opportunities for ANG cyber missions to grow.

Because the United States’ infrastructure is a vulnerability easily exploited, Governors nationwide have requested additional National Guard cyber capabilities to defend it.²⁵ The National Governors Association (NGA) released a “Call to Action” position paper outlining the need to improve their state’s cybersecurity posture.²⁶ The NGA is leading efforts through the Council of Governors to collaborate with the Department of Defense (DoD) and Homeland Security on how the National Guard could be used to better protect both state and federal networks. The National Guard’s unique role serving governors and the President, combined with its ability to attract highly skilled personnel, make them an ideal solution for the shortage of talent necessary to protect critical networks and systems.

Taking on these additional cyber missions will require additional manning. Because cyber talent is in high demand in both the private sector and the DoD, the ANG must be diligent in retaining their cyber force. The Center for Cyber Safety and Education used a survey to poll 2,620 U.S. federal government employees, 1,614 military and 1,006 non-military.²⁷ This survey resulted in valuable information for leaders to use in assessing where they need to focus efforts to secure an organization’s infrastructure. Figure 3 shows 87 percent polled cited “hiring and retaining

qualified information security professionals” as the number one factor in successfully securing critical infrastructure.²⁸

Top 5 factors important to securing organization’s infrastructure

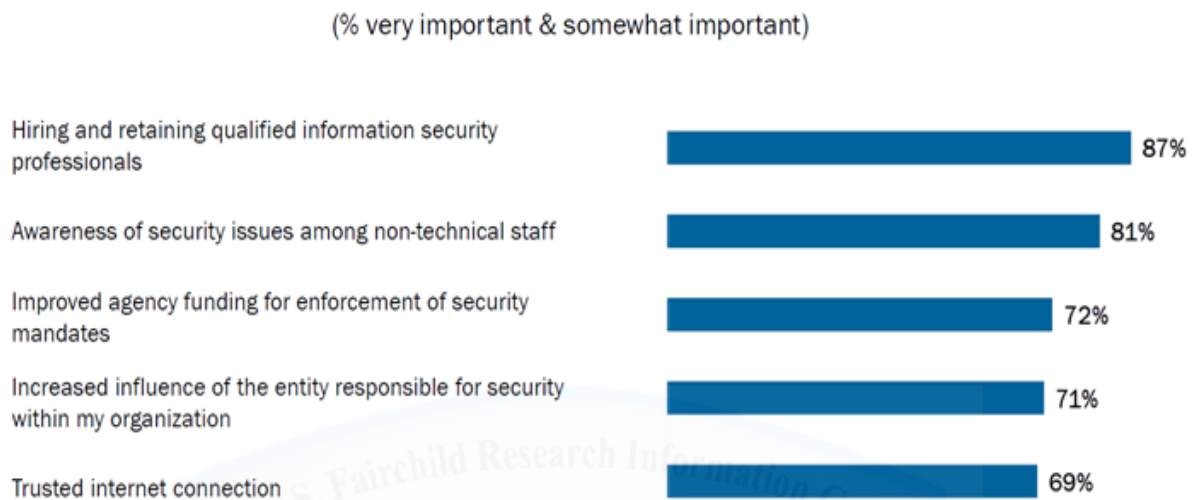


Figure 3. Top 5 factors to Securing Infrastructure

(Reprinted from Frost & Sullivan, “The 2017 Global Information Security Workforce Study” U.S. Federal Government Results, Center for Cyber Safety and Education, June 2016-September 2016.)

To successfully execute cyber missions, two critical resources are needed, infrastructure and cyber talent. The ANG has the infrastructure enabling it to execute cyber missions. To secure and retain the necessary talent, ANG leaders need to understand what motivates these professionals to commit to an organization. And to know that, leaders must know their audience, Millennials.

MILLENNIALS

Love them, or not, Millennials make up a large percentage of the affectionately named “geek” demographic, and a growing percentage of the IT workforce. Millennials grew up during the internet age and have a comfort and familiarity with technology making them prime candidates for IT careers.²⁹ Neil Howe and William Strauss define Millennials as being born

between 1982 and 2004.³⁰ According to an article published by Cornell University, Millennials make up 32 percent of the workforce, making them the “most populous generation” working today.³¹ This same article points to studies disputing a common assumption that Millennials are less likely than past generations to commit to an organization. Figure 4 shows the retention rates of 25 to 34 year olds from 1983 to 2012. This research shows Millennials will commit, given the right circumstances.

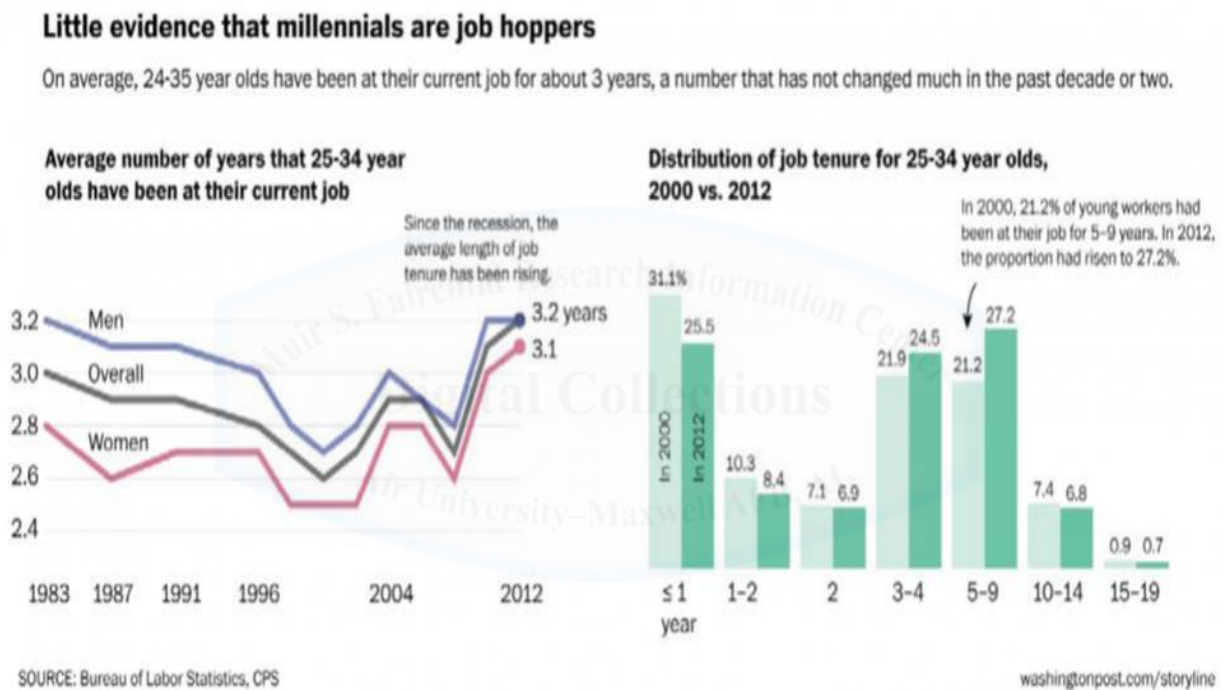


Figure 4. Millennial Job Hopping

(Reprinted from Alana Cunningham, “Are there differences in long-term commitment between the different generations in the workforce?” Cornell University ILR Collection, Spring 2016.)

Understanding the desires of this generation is key to gaining their commitment. Studies on this generation have resulted in vast amounts of data explaining general characteristics describing a typical Millennial. Not all of the characteristics will apply to everyone born in this generation. Many factors outside of age will determine the desires of an individual. This

research focuses on the general characteristics that are found to be common among Millennials and are relevant to retention. Compensation, work-life balance, physical requirements and organizational structure will be weighted to determine the hiring status best suited for Millennial retention.

Colonel Kay Smith conducted research on connecting with Millennials published in the *Air Force Journal of Logistics*. This research focused on understanding generational culture to effectively target candidates for enlistment in the Air Force. Her research uncovered insightful statistics. Colonel Smith reported, “73 percent of American youth are not qualified for military service, 55 percent are disqualified for weight, medical, moral, and dependent reasons; 44 percent are disqualified for education and aptitude reasons.”³² The Center for Disease Control (CDC) substantiate Colonel Smith’s study. In 2015 the CDC reported 34 percent of people ages 25 to 34 were obese.³³ While some disqualifying factors cannot be ignored regardless of status, medical and weight are common disqualifiers in the military. These observations suggest a military affiliation greatly reduces the choices leaders have in hiring from the Millennial generation.

Organizational structure is another factor impacting the ability to retain Millennials. The literature review provided data from various sources explaining the type of organization desired by Millennials. Colonel Smith’s article describes Millennials as having a “new focus on teamwork, achievement, modesty and good conduct.”³⁴ Her research uncovered the desire from Millennials to be “engaged in a job having meaning and working in a fun environment.”³⁵ In a paper written by Dr. Thompson, “Managing the Millennials: Employee Retention Strategies for Generation Y,” he also expresses the view, Millennials thrive in a team oriented environment.³⁶ Dr. Thompson’s research gives an interesting assessment of why Millennials are the way they

are. By examining what shaped the generation, Dr. Thompson was able to ascertain the “motivational drivers” that could help in retaining them.³⁷ The study looked at the parenting style of the generation who raised them. Dr. Thompson describes Millennials as having “coddled childhoods, as they spent much of their youths protected, respected, and sheltered.”³⁸ A military structure has a culture of implied respect for superiors. Because of the way millennials were raised, they feel their managers have to earn their respect. This suggest a more flattened, civilian organizational structure would best meet the desires of Millennials. He goes on to suggest Millennials desire a work environment with strong ethics and values. The Air Force core values are the bedrock of the organization and is centered on ethics.

Other aspects of organizational structure are communication flow and level of responsibility. These are also important criteria for Millennial retention. “A Qualitative Evaluation of Leader to Millennial Relationship Development,” written by Tywana Williams, provides common perceptions among Millennial workers on effective leader-to-Millennial relationship development. This study provides data used to determine how Millennials expect to fit into an organization and their expectations from management. Williams’s research concluded Millennials desire social exchanges from leaders who “empower individual development.”³⁹ Opportunities to learn, mentoring, and a collaborative work environment with open and direct communication were all perceived as important in Millennials sense of obligation to the organization.⁴⁰ Millennials like “having bosses they can relate to and being allowed to participate in work decisions.”⁴¹ Research also suggest Millennials want to acquire additional responsibilities and more challenging task supporting organizational performance.⁴² By removing rank structure, leaders have more flexibility to assign projects and tasks based on skill sets and abilities rather than rank. Military communication exchange is based on a top down hierarchy where members are encouraged to

work issues at the lowest level and work up through their chain of command. When applied to this study, these findings suggest Millennials desire a less formal communication style than that present in a military organization.

Both Dr. Thompson and Colonel Smith's study notes Millennials desire for "instant gratification."⁴³ Dr. Thompson remarks that this need for instant gratification makes it difficult for this generation to "wait for promotions" and causes struggles with "bureaucratic inefficiencies."⁴⁴ While both Title 5 and Title 32 have some degree of inefficiencies in processes, there is the ability to promote Title 5 employees through the pay steps based on skill. Title 32 and AGR have a rank structure that could cause an employee to be held up from a promotion for many years. This could frustrate a Millennial employee. Dr. Thompson states the need for "growth and advancement is perhaps the defining career aspiration of the Millennial generation."⁴⁵ He goes on to say, "lack of career progress" ranks first among millennial employees' reasons for leaving.⁴⁶ While there are opportunities for career progression in Title 32 positions, the military affiliation will limit an enlisted member from filling a higher paying position for various reasons to include grade inversion and commissioning opportunities. This may be seen by Millennials as a limiting factor for career progression. Dr. Thompson suggests Millennials prefer, "quick and erratic performance-based advancement than they are with slow and predictable steady advancement."⁴⁷ Title 5 and Title 32 pay schedules are structured to receive pay raises based on a time schedule that can be accelerated through performance based quality step increases. Title 5 would eliminate the rank and AFSC requirement and open up opportunities for employees to more easily promote to a higher graded Title 5 position either within or outside of the ANG.

Work-life balance is a term used repeatedly in literature on millennial retention and must be factored into a successful retention strategy. The study by Dr. Thompson reveals Millennials'

desire for a “flexible lifestyle” and “control of their personal lives” are the most important elements in work-life balance.⁴⁸ A military affiliation can impact work-life balance in both positive and negative ways. The positive centers around time off. An AGR is granted 30 days of annual leave a year to spend off duty with family and friends. An AGR is also granted unlimited medical leave if they experience illness. Title 32 and Title 5 offer less time-off for personal reasons. The negative work-life balance of a military affiliated status is based on deployment commitment. “Over half of Millennials surveyed say their principal goal in life is to be a good parent,” followed closely by their desire to “have a successful marriage.”⁴⁹ Because military life comes with the expectation of training and deployments, AGR and Title 32 status may be less desirable to Millennials.

The literature review revealed valuable information to help ANG leaders choose a hiring status best suited for Millennial employees. Applying this information to the decision making process will help ANG leaders leverage the best status to retain cyber professionals. Choosing the right status will enhance retention, and save on personnel investment.

TITLE 5, TITLE 32 & AIR GUARD RESERVE STATUS

The ANG currently hires full-time employees as a Title 32 dual status technician, Air Guard Reserve (AGR) or Title 5 non-dual status technician. The FY 2017 end strength recommended for the ANG is as follows; 22,103 dual status technicians, 16,000 AGR and 350 non-dual status technicians.⁵⁰ Dual status military technicians are required to maintain military membership in the ANG as a condition of their employment. Non-dual status technicians are not required to maintain military membership. The FY 2016 NDAA directed the conversion of 20 percent of all dual status military technicians, to Title 5 federal employees by 1 January 2017.⁵¹ Section 1084 of FY 2017 NDAA modified the implementation date to 1 October 2017 and gave the National

Guard Bureau (NGB), the Adjutant General (TAG) for each state, and the Secretary of Defense more discretion as to what positions will be converted.⁵² Additionally, FY 2017 NDAA requested a report on the feasibility and advisability of conversion of remaining dual status technicians to AGR.⁵³

Each hiring status has different nuances in compensation, work-life balance, organizational structure and physical requirements. These differences will be used as criteria in assessing the compatibility of each status, Title 5, Title 32 or AGR, to Millennial desires. Based on this assessment, a multiplier will be applied to a decision matrix. This will help determine the status most compatible with the desires of Millennials.

Compensation

Both Title 5 and Title 32 technicians are paid based on Position Descriptions (PD) and are classified as either General Scale (GS) or Wage Grade (WG) employees depending on the nature of the position. NGB creates the PDs for Title 32 where Title 5 classification is governed by Section 5104 of the Title 5 US Code.⁵⁴ Title 32 technicians are not compensated monetarily for overtime.⁵⁵ Instead, they are awarded compensatory time to be used during the year it was earned. Title 5 is paid a dollar figure for overtime according to section 5544 of Title 5 US Code.⁵⁶ Both Title 5 and Title 32 technicians earn pay raises through a structured step system that can be accelerated by management for superior performance. Both GS and WG pay scales have a cap on steps. Once reached, the technician will either need to compete for a different job rated at a higher scale, or be limited to a basic cost of living increase awarded annually by Congress. GS scales are supplemented by a locality payment based on the cost of living for certain areas of the country. Title 32 technicians have a military affiliation and are paid based on rank when they perform one weekend a month drills and 15 days a year of Annual Training

(AT). Military pay is based on rank and members are limited to promote to the rank of the position they hold. The pay for a drill weekend is “base pay” based on rank and Time In Service (TIS). This base pay is paid in four hour periods amounting to four days of pay for two days on duty. The AT days are one for one and based on rank and TIS. During AT, local subsistence (BAS) and housing (BAH) allowances are paid if the member is eligible.

By way of comparison, a survey conducted by The Center for Cyber Safety and Education listed the average salary for US Federal Information Security Workforce at \$118,000. According to the study, 78 percent report the highest demanded employees are non-managerial.

78% of respondents claim highest demand for new hires exist in non-managerial staff segment

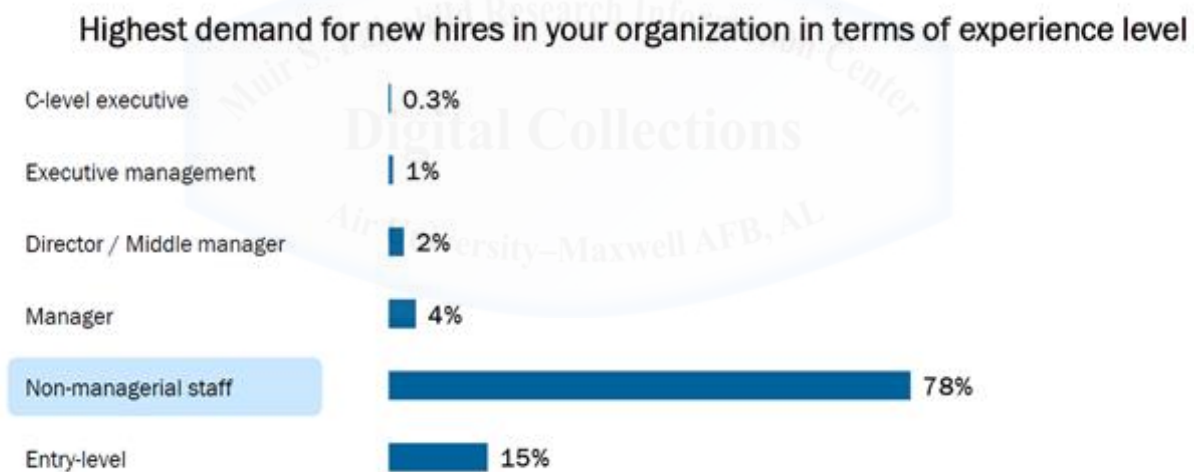


Figure 5. Highest Demand for New Hires

(Reprinted from Frost & Sullivan, The 2017 Global Information Security Workforce Study” U.S. Federal Government Results, Center for Cyber Safety and Education, June 2016-September 2016.)

In the ANG, these non-managerial positions are rated at GS 11 for Title 32 technicians. The 2017 salary table for GS 11, Rest of the United States (RUS), areas not covered under one of the 47 locality areas, shows top salary for GS 11 step 10 is \$78, 270.⁵⁷ If this same GS 11 held the

rank of TSgt, an additional \$6162 for 12 months of drill would be earned. If 15 days of annual training were performed, they would make an additional \$3,113. This amounts to \$9,275, bringing the gross annual salary of a topped out GS 11 who holds the rank of TSgt to \$87,545.

Additional out of pocket cost for Title 32 and Title 5 employees are retirement and insurance. Using the GS 11 step 10 example, a 10 percent allocation to TSP is \$7,827 annually. The Federal Employees Retirement System (FERS) is 1 percent of basic pay or \$782.⁵⁸ Using a well know Federal Employment Health Insurance (FEHI) provider, Blue Cross Blue Shield Federal, the cost for a member with dependents is \$6,194 a year, with maximum out of pocket expenses of \$10,700 a year.⁵⁹

AGRs are paid a base pay according to rank and TIS. Additionally, they are provided a stipend for BAS and BAH, also determined by rank. Base pay is subject to federal and state tax but the stipends are tax free. AGRs must meet Air Force Instruction (AFI) driven milestones to promote, and they are limited to promote only to the rank of the position they hold. So, even if they meet all requirements for a higher rank, they may have to wait many years for a position or control grade to become available before they can promote. AGRs also receive an annual cost of living increase set by Congress. The average rank of cyber professionals in the ANG is a Technical Sergeant (TSgt) E-6. Using the Regular Military Compensation Calculator, the average annual wage for a TSgt with 20 years' service and three dependents is \$74,723.⁶⁰ Medical and retirement are free to AGR members with no additional out of pocket expenses.

Figure 4 shows the annual salary for cyber professionals in each status. This figure accounts for retirement and medical insurance for Title 32 and AGR. If Title 5 PDs are also graded at a GS 11, regular pay and benefit package will be the same for Title 5 and Title 32. Title 5 may not have the additional military pay if they choose to have no military affiliation.

Fed salary increases, remains below private sector

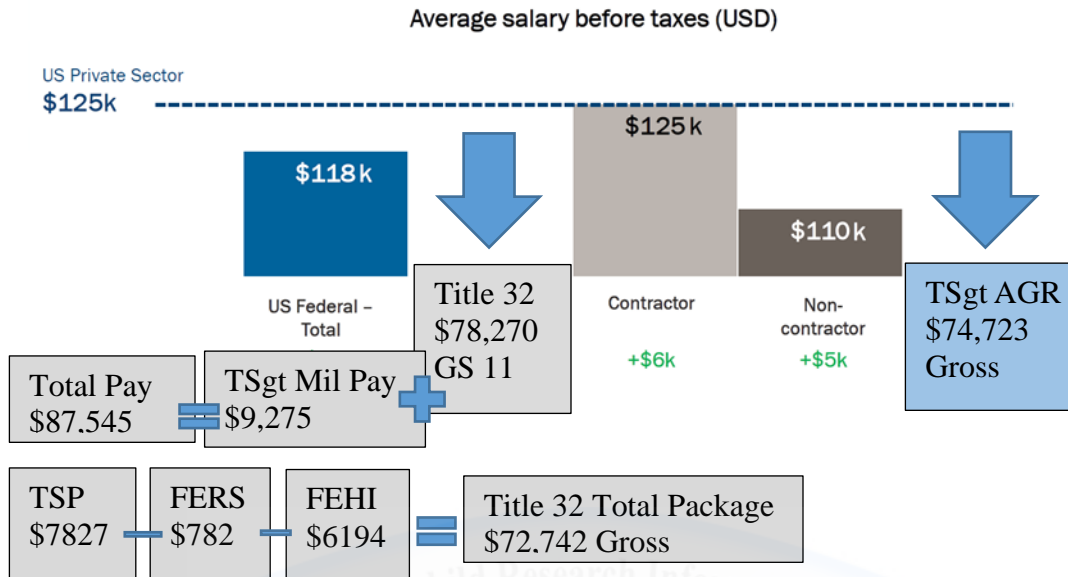


Figure 6. Compensation Comparison

(Adapted from Frost & Sullivan, The 2017 Global Information Security Workforce Study” U.S. Federal Government Results, Center for Cyber Safety and Education, June 2016-September 2016.)

Work-Life Balance

Work-life balance is a concept defined by the Cambridge Dictionary as, “the amount of time you spend doing your job compared with the amount of time you spend with your family and doing things you enjoy.”⁶¹ Different statuses in the ANG will result in different work-life balance due to the amount of leave earned for each status, and deployment commitments requiring a military member to be away from their families for extended periods.

For Title 32 and Title 5 technicians, the amount of earned leave are similar. Annual leave is awarded by hour per pay period. A member starts out earning 4 hours a pay period and then after 2 years of federal service advances to 6 hours per pay period. After 15 years of service

leave is accrued at 8 hours per pay period. Sick leave is accrued at 4 hours per pay period and can be used for the employee, or to take care of a family member. Military leave is awarded at 120 hours each year to be used when a technician is performing their military annual training or to make up missed drills during the week. A Title 5 who chooses to serve in the NG or Reserves is eligible for military leave. Title 5 and Title 32 technicians are not required to use leave over weekends or holidays regardless of where they choose to take their time off. They are only required to use leave on scheduled work days.

AGRs accrue two and a half days of annual leave a month throughout their career. AGRs are not charged leave for sick days. Instead, they are placed on quarters by a medical provider until they recover. AGRs must use annual leave through weekends and holidays if they choose to leave the local area designated by the installation commander. If an AGR does not attend a scheduled drill they must be in a leave status.

An accrual rate of six hours a pay period will be used to compare annual leave authorizations for the three statuses. An AGR can only take leave for a full day but can be released from duty after working four hours. A technician takes leave hourly and must be in a leave status if not at work. The table below compares the number of days an employee will earn annually based on hiring status.

Table 1. Leave

Leave Type	AGR	Title 32 & Title 5
Annual Leave	30 Days Annually	19.5 days Annually
Sick Leave	Unlimited	13 Days Annually

Military commitment associated with status also impacts work-life balance. Title 32

technicians and AGRs are required to attend drill one weekend a month. Title 5 technicians are not required to have a military affiliation and therefore can choose to not join the Guard or Reserve. Deployment commitment is an additional factor impacting statuses requiring a military affiliation. Because of the nature of Title 32 employment, technicians could be tasked to deploy. AGRs can also be tasked to deploy. Title 5 employees are not required to have a military affiliation and would not be subject to deployment cycles. An additional military commitment for Title 32 and AGR is state activation. A Title 32 technician and AGR are subject to state activation by the Governor in the event of a state emergency. However, an AGR can only be activated to perform duty in their assigned AFSC. A Title 32 technician can be activated to perform any duty necessary to support the emergency. For these reasons, Title 32 is the least compatible to the desired work-life balance of Millennials.

Organizational Structure

Title 32 technicians have the most complicated structure of the three statuses. There is the military structure based on rank, and the technician structure based on position description. There are conversion tables preventing a higher ranking member from being supervised by a lower ranking member. This is called grade inversion and is not allowed to occur through the normal hiring process. However, when in a military status, a Title 32 technician may be subjected to additional layers of leadership for the same job they perform in a civilian status. Additionally, Title 32 technicians must meet military standards to maintain their full-time technician position. If a Title 32 loses their military affiliation for any reason, they lose their Title 32 position 30 days from military discharge.

The organizational structure for AGRs is based on rank. An AGR could be supervised by a Title 32 technician, however, due to measures put in place to prevent grade inversion, the

supervisor will out rank them. AGRs must follow all military customs and courtesies and are subject to discharge if they do not meet military standards. AGR, like Title 32, follow a top down hierarchy where members communicate up through their chain of command.

Title 5 employees have the flattest organizational structure. Not having a rank structure allows tasking and projects to be assigned based on skill level. This would also prevent members from having to wait for military career milestones to attend some training. Title 5 also eliminates a “rank has its privilege” mentality associated with working in a military organization. The flattened structure allows employees more access to management and would enhance member’s ability to voice ideas and take on higher responsibilities regardless of rank. For these reasons Title 5 status would be the most compatible with the desires of Millennials.

Physical Requirements

Both Title 32 and AGR statuses require members to maintain military health and fitness standards to be employed by the ANG. A physical fitness test is administered annually with standards based on age and gender.⁶² The age range of the fitness assessment charts start at < 30 years of age, then are broken up for every 10 year period up to age 60+. The test is comprised of a timed 1.5 mile run, a predetermined number of push-ups and sit-ups to be completed in 1 minute, and a waist measurement not exceeding a predetermined number of inches.⁶³ Additionally, there are medical and age disqualifiers associated to military affiliated statuses. Title 5 technicians would not be required to meet health, fitness or age standards associated to a military affiliation. This would grow the pool of candidates for future employment and aid in retaining current cyber professionals. Table 2 summarizes the criteria for each hiring status.

Table 2. Status Differences

	Status Differences			
Criteria	Work/Life Balance	Compensation	Physical Requirements	Organizational Hierarchy
Title 5	19.5 Days Annual leave 13 Days Sick Leave No Deployment Commitment	Annual Salary Based on PD Monetary Compensation for Overtime	No Physical Requirements	Organizational Hierarchy Based on Position Description
Title 32	19.5 Days Annual leave 13 Days Sick Leave Deployment Commitment	Annual Salary Based on PD Military Pay Compensatory Time Given for Overtime	Mandatory Fitness Test/Physical/Age Requirements	Organizational Hierarchy based on Rank & Position Description
AGR	30 Days Annual Leave Unlimited Sick Leave Deployment Commitment	Annual Salary Based on rank Free Benefits No Compensation for Overtime	Mandatory Fitness Test/Physical/Age Requirements	Organizational Hierarchy based on Rank

ANALYSIS

This research will utilize the problem solution framework to make recommendations on what hiring status ANG leaders should utilize in an effort to retain cyber professionals. The possible solutions are: utilize Title 5 conversion as a way to retain cyber talent in the ANG. Avoid converting cyber professionals from a dual-status Title 32 to a non-dual status Title 5. Hire cyber professionals in an AGR status. A literature review on the desires of Millennials determined weight given to each criteria. Criteria is weighted on a one to five scale, one being least important to five being most important. Lastly, each criteria will be assessed and the highest

score will determine what status is most beneficial to the retention effort.

Based on the literature review of the Millennial Generation, work-life balance was weighted as most important. Millennials value a flexible work schedule and time off to spend with family and friends. For this reason, work-life balance was given a weight of five. In a close second, Millennials placed a great deal of importance on compensation. Millennials expect to be compensated for their skills. Millennials have also been conditioned for instant gratification and expect to be promoted quickly. For these reasons, compensation received a weight of four. Research suggested organizational structure was also important to Millennials. Millennials expect to feel respected and desire working in a fun, team-oriented environment. They need to find value in what they do, and desire to work in an ethical and moral organization. For this reason, organizational structure was rated a three. Lastly, physical requirements were weighted at two. Evidence did suggest Millennial life-style choices may limit their ability to join and retain a military status. Table 3 summarizes the weight assigned to each criteria.

Table 3. Criteria Weights

Criteria	Work/life balance	Organizational Structure	Physical Requirements	Compensation
Weights	5	3	2	4

A one through five Multiplier will indicate how well the status supports the criteria. One indicates the status will support the criteria the least. Five indicates the status most supportive of the criteria. Title 32, Title 5 and AGR will each be assigned a multiplier used to calculate a total score for each status.

For work-life balance, Title 5 received the highest multiplier of four. The lack of deployment commitment and having weekends free, made Title 5 the strongest choice for work-life balance. AGR was second, with a multiplier of three. The additional time off for personal

leave, coupled with the unlimited sick leave, made this the second highest choice. Lastly, Title 32 scored lowest for work-life balance. Less time off and a deployment commitment make this the least desirable choice in an effort to retain Millennials.

Title 5 had the highest multiplier for the organizational structure criteria. Title 5 offers an opportunity for Millennials to be part of a team oriented organization that is challenging and has a strong commitment to ethics and values. Title 5 status also has a more flattened structure that presented more opportunity to be part of decision making in the organization. Additionally, Title 5's flattened structure better facilitated Millennials ability to express their opinions and ideas to management. AGR was ranked second in organizational structure with a multiplier of three. Being part of the military would satisfy the need for Millennials to feel part of a team and to feel their work was valued and meaningful. However, a military structure does limit Millennials in their ability to communicate directly to leadership and could limit direct communication based on rank. Title 32 had the lowest multiplier at two. Title 32 has two organizational structures complicating communication flow. Depending on status, a member may report to someone in a military status, but are equal when in technician status. This would be least desirable to a generation that was raised to believe all things should be fair and equal.

Title 5 received the highest multiplier for physical requirements. No physical fitness test would be most desirable to a generation plagued by obesity and weight related illnesses. AGR received the second highest multiplier due to free health insurance and unlimited time off for sick leave. For these reasons Millennials would have the means to health care that would better enable them to meet the physical requirements of military status. Title 32 received the lowest multiplier of one. Having to meet all of the physical requirements of being in the military without compensation for out of pocket health expenses make Title 32 the least supportive of this

criteria.

For compensation, AGR received the highest multiplier of five. Tax incentives plus free medical and retirement benefits make this the most supportive status of this criteria. Title 5 was second with a multiplier of four. Title 5 removes the limitations of NGB generated PDs and allows for pay based solely on skill. Without the rank structure, Title 5 employees will be able to compete for positions that are only offered to commissioned officers in a Title 32 structure. Title 32 has the lowest multiplier of two. This status limits promotion opportunities because of the associated rank structure. Additionally, Title 32 must pay for health insurance and pay into a 401K plan for their retirement. If a Title 32 employee is medically discharged or fails to meet fitness standards, they will automatically lose their Title 32 position 30 days later. This makes Title 32 the least supportive of this criteria.

Table 4. Decision Matrix

Criteria	Work/life balance	Organizational Structure	Physical Requirements	Compensation	SCORE
Weights	5	3	2	4	
Title 32	2x5=10	2x3=6	1x2=2	2x4=8	26
Title 5	4x5=20	5x3=15	5x2=10	4x4=16	61
AGR	3x5=15	3x3=9	2x2=4	5x4=20	48

Title 5 received the highest overall score for status most desirable to Millennials. A flatter organizational structure, opportunities for advancement and work-life balance, make this the best status to retain Millennials. AGR was the second highest score. Higher take home pay, more time off, and free benefits make AGR a status desirable to the Millennial generation. With compensation packages that are well below the civilian sector, combined with military requirements that impact work-life balance, Title 32 status is the least compatible for retaining Millennials.

RECOMMENDATION

Millennials are a generation that can be retained if the right set of circumstances exist.

Using data driven evidence to choose the right hiring status will increase opportunities to retain valuable cyber employees. The criteria used in this research, were derived from core differences in the three pay statuses for ANG employees. These criteria were then weighted based on how important they are to Millennial employees. Finally, multipliers were determined based on how well the hiring status supported the criteria. This resulted in a recommendation for ANG leaders to consider when choosing full-time hiring resources to man critical cyber career fields.

This research determined hiring Millennials in a Title 5 status would best support the retention effort in critically manned cyber fields. First, data shows a large percentage of Millennials are not able to meet the Militaries stringent physical requirements. This has resulted in limiting the pool of tech savvy young adults the ANG could be capitalizing on to staff their full-time force. Hiring in a Title 5 status would eliminate health and age discriminators, and remove the requirement for a mandatory fitness test.

Second, the organizational structure of a Title 5 employee would be most compatible with the desires of Millennials. Millennials desire a team-oriented, fun working environment, with an organizational culture based on strong values and ethics. While all three hiring statuses offer an opportunity to work in a fun, ethical environment, Title 5 offers a flattened structure found most desirable to Millennials. A desire for a direct line of communication to superiors, and opportunities to be part of decision making processes, make Title 5 the best choice. Both Title 32 and AGR organizational structure are organized in a top down, tiered hierarchy incompatible with the desires of Millennials. For these reasons, Title 5 organizational structure is the best choice for Millennial retention.

Lastly, Title 5 employees have a work-life balance allowing Millennials the flexibility they desire. Having the ability to serve in the ANG without the weekend commitment would appeal to a Millennials desire to put family first. Title 5 status would also eliminate the deployment commitment, further enhancing work-life balance. Having Title 5 employees in place to train the traditional force will allow the ANG to fulfill home station requirements, and meet deployment commitments.

AGR is the second choice for hiring status most compatible to the desires of Millennials. Because of tax breaks and free benefits associated with AGR status, take home pay for AGR employees is greater than Title 5 or Title 32 making this the best option for compensation. Additionally, AGRs accrue 30 days of leave a year, starting the first year of employment. This fulfills the Millennials need for “instant gratification” and the desire for time off, further enhancing the work-life balance. For these reasons, AGR should be used as a second choice for hiring status in the effort to retain cyber talent.

Title 32 status scored the lowest in every criteria making it the least compatible for meeting the desires of Millennials. Continuing to hire cyber professionals in a Title 32 status will hurt the retention effort and could lead to the ANG’s inability to meet current requirements and take on future cyber missions.

CONCLUSION

Cyber talent is in high demand in both the private sector and government agencies. Technology driven weapons-systems, cyber threats to critical infrastructure, and data leaks due to network vulnerabilities, are serious threats to national security. These threats can only be combated by hiring and retaining talented cyber professionals. The ANG has a nationwide presence that makes it ideal for executing cyber missions. Using the opportunity presented by 2016 NDAA,

ANG leaders need to act now to apply Title 5 resources to cyber career fields in an effort to retain these critical employees. Additionally, all cyber employees not converted to Title 5 status should be converted to AGR. Lastly, Title 32 status does not support the criteria desired by Millennials and continuing to employ cyber talent in a Title 32 status will hurt the retention effort. Retention will be critical in winning the war in cyberspace. Leaders must act now if the ANG intends to meet future demands of an ever increasing data driven Air Force.

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